APPENDIX A

Air Quality Study

Air Quality Study

for the

Addendum to the NorthStar Specific Plan

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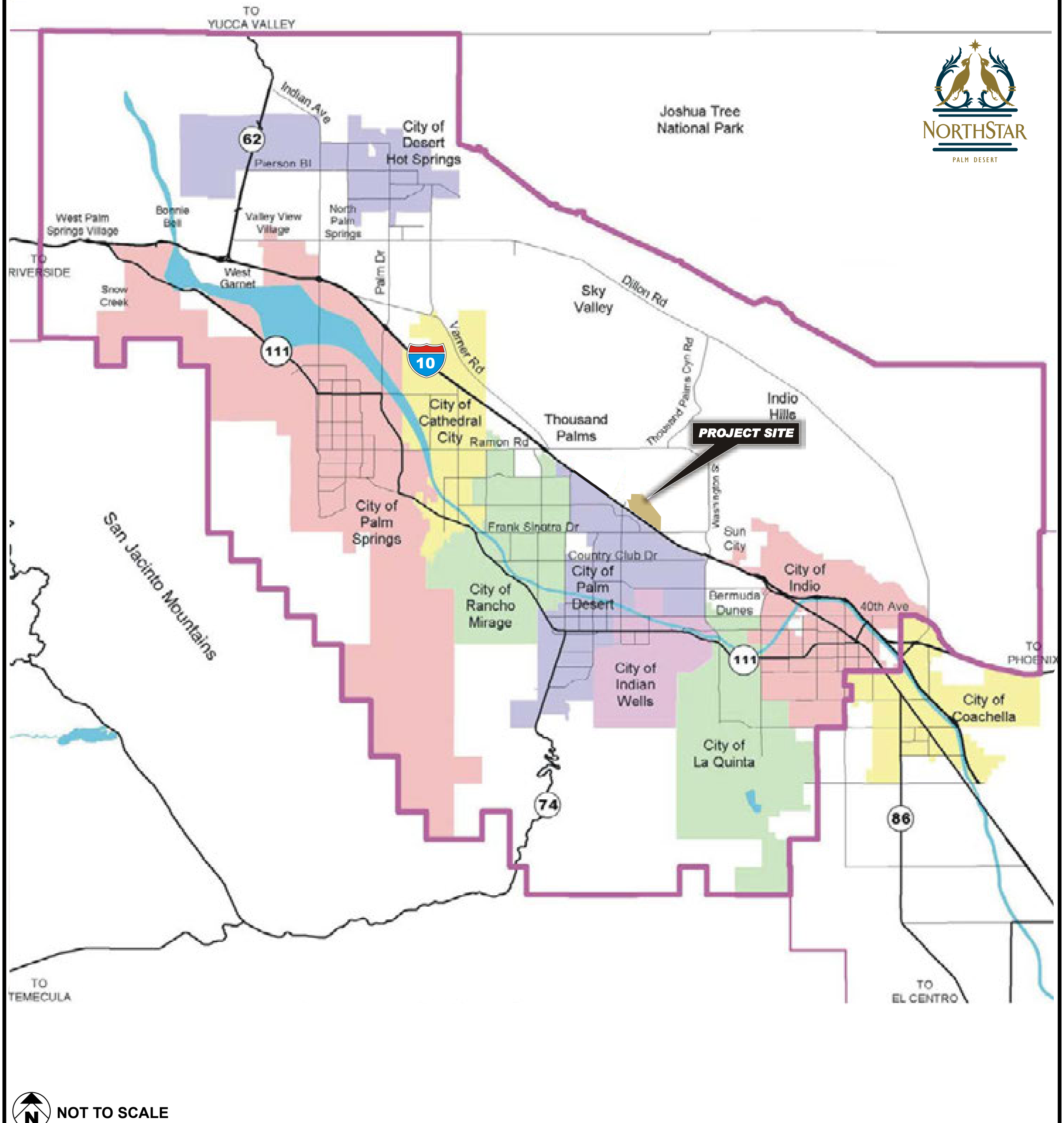
STUDY PURPOSE & OBJECTIVES

The purpose of this Air Quality Study is to address potential air quality impacts that may occur with the Riverside County Arena (Project), to determine if there would be any new or substantially increased noise impacts beyond what was disclosed in the 2006 NorthStar Specific Plan EIR with the proposed Specific Plan amendment, including the addition in Planning Area 11. This Air Quality Study assesses and discusses the potential air quality impacts that may occur with the Project and the proposed Specific Plan, located in the County of Riverside (County), California. The analysis estimates future emission levels resulting from construction and operation of the Project and identifies the potential for significant impacts. An evaluation of the Project's contribution to potential cumulative air quality impacts is also provided. Air quality worksheets are provided in **Attachment A: CalEEMod Air Quality Emission Output Files**.

PROJECT DESCRIPTION

The NorthStar Specific Plan Area is located in the Western Coachella Valley within the unincorporated portion of Riverside County as shown in **Figure 1: NorthStar Specific Plan Regional Location Map**. Specifically, the NorthStar Specific Plan Area is located north of Interstate (I-) 10 and east of the Cook Street Interchange. Access is provided via Varner Road, which is situated parallel to the southern boundary of the NorthStar Specific Plan Area as depicted in **Figure 2: NorthStar Specific Plan Vicinity Location Map**. Surrounding land uses include the Coachella Valley Preserve to both the east and northeast, Cook Street to the west and Varner Road to the south. I-10 is located immediately south of Varner Road. The City of Palm Desert, the Cal State University San Bernardino Desert Campus and additional commercial and industrial uses are situated across I-10, further south of the NorthStar Specific Plan Area.

The proposed amendment to the NorthStar Specific Plan (SP Amendment) would reduce Planning Area 8 and make minor adjustments to the boundaries for Planning Area 4, 6, and 7 as defined in the adopted Specific Plan to accommodate the addition of Planning Area 11, which would allow the development of the proposed Riverside County Arena, a new multi-purpose arena event center, hockey training facility with practice ice, public open space, surface parking, and retail skate shop on an approximately 41.4-acre site. Collectively, the SP Amendment and the proposed Arena would be referred to as the "proposed Project." The "Project site" refers to Planning Area 11 and the development of the proposed Arena that are within the NorthStar Specific Plan area and included in the proposed Specific Plan amendment.



SOURCE: The Altum Group - 2020

FIGURE 1

Meridian Consultants

NorthStar Specific Plan Regional Location Map

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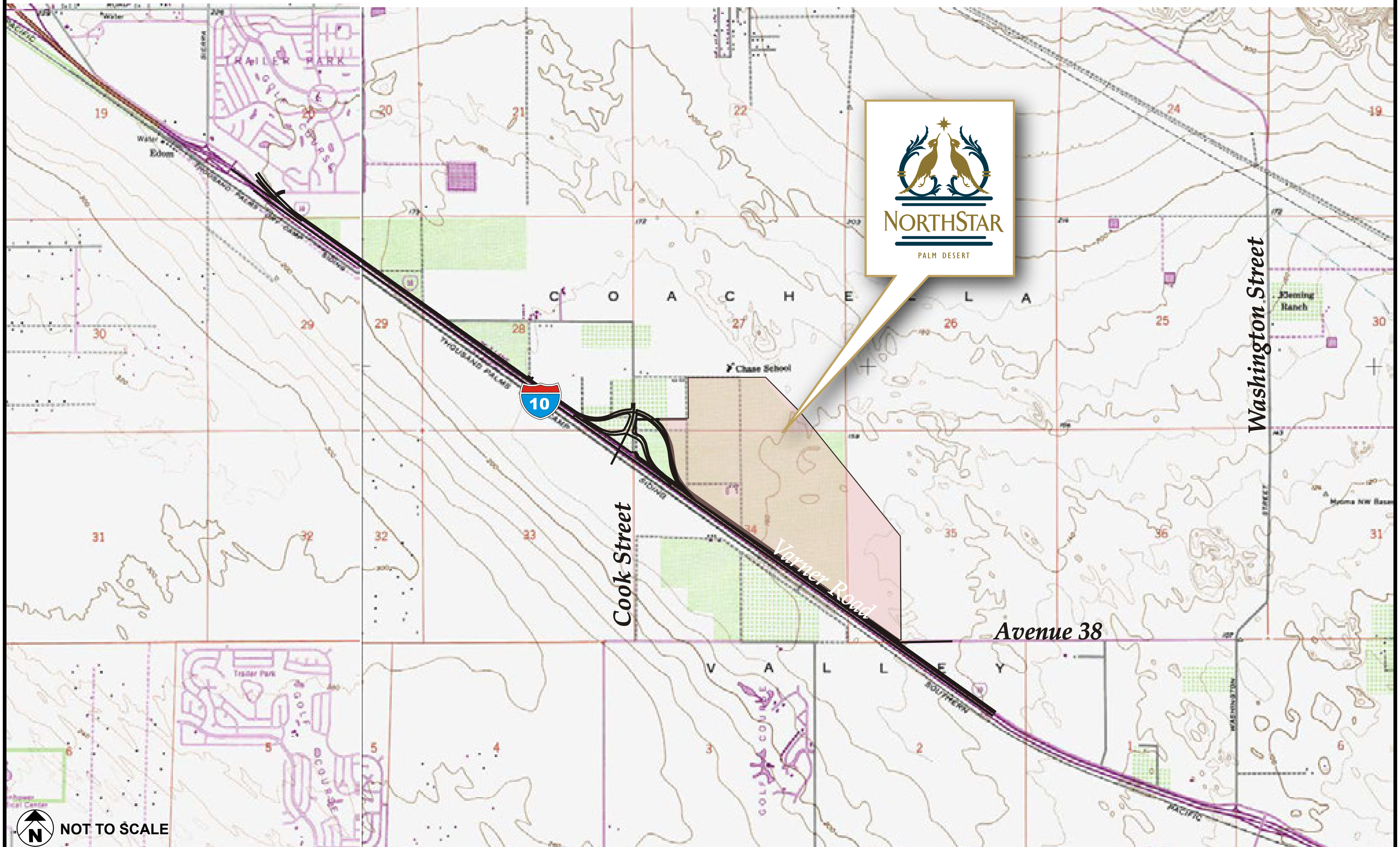

SOURCE: The Altum Group - 2020

FIGURE 2

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NorthStar Specific Plan Vicinity Location Map

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REGULATORY SETTING

Ambient air quality emissions present complex environmental issues that require regulatory attention on both large and small scales. The cumulative nature of project-level and localized emissions contributing to greater regional conditions warrants that regulatory policies be instituted on national, State, and regional levels to address air quality concerns. The following sections outline the applicable regulatory framework that exists at the national, State, and regional levels for air quality.

Background

The United States Environmental Protection Agency (USEPA) is responsible for federal oversight and enforcement of air quality management policies under the 1970 Clean Air Act (CAA). Each individual state is tasked with preparing and adhering to State Implementation Plans[1] (SIPs) for achieving the goals set forth within the CAA. California has some of the most stringent air quality policies in the country and, through the California Air Resources Board (CARB) branch of the California Environmental Protection Agency (CalEPA), has developed its own ambient air quality standards (AAQS).

The State is divided into air quality jurisdictions; each jurisdiction is governed by a regional air district that oversees policy implementation, permitting of air pollution emission sources, and enforcement of regulatory requirements. Six criteria air pollutants (CAPs) are monitored at the federal, State, and regional levels. These six CAPs—ozone, particulate matter PM10 and PM2.5, nitrogen dioxide, carbon monoxide, lead, and sulfur dioxide—were identified based on a consensus of decades of research that concluded inhalation of each of the chemicals results in adverse health effects in humans. The six pollutants are identified below in **Table 1: Sources and Health Effects of Criteria Air Pollutants**, along with their common sources and primary health effects from inhalation exposure.

1 A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain National Ambient Air Quality Standards.

Table 1
Sources and Health Effects of Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone (O3)	Formed through chemical reactions between pollutants emitted from vehicles, factories and other industrial sources, fossil fuels, combustion, consumer products, evaporation of paints, and many other sources; VOCs and NOx react in the presence of sunlight	Respiratory symptoms; worsening of lung disease; lung tissue damage; ecosystem damage; damage to rubber and some plastics
Respirable particulate matter (PM10)	Emissions from combustion of gasoline, oil, diesel fuel or wood; dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, wind-blown dust from open lands, pollen and fragments of bacteria; chemical reactions of gases and certain organic compounds	Premature death and hospitalization; worsening of respiratory disease; reduced visibility; surface soiling
Fine particulate matter (PM2.5)	Emissions from combustion of gasoline, oil, diesel fuel or wood; chemical reactions of gases and certain organic compounds	Premature death; hospitalization; asthma-related emergencies; increased asthma symptoms and inhaler use
Carbon monoxide (CO)	Incomplete combustion of CO-containing fuels such as natural gas, gasoline, or wood; emitted by a wide variety of combustion sources, including motor vehicles, power plants, wildfires, and incinerators	Chest pain in heart disease patients; headaches; light-headedness; reduced mental alertness
Nitrogen dioxide (NO2)	Emitted from combustion sources similar to CO; formed in the atmosphere through reactions between NO and other air pollutants that require the presence of sunlight (photochemical reactions).	Lung irritation; enhanced allergic responses
Lead (Pb)	Present in soils; ore and metals processing; waste incinerators, utilities, and lead-acid battery manufacturers	Impaired mental function; learning disabilities; brain and kidney damage
Sulfur dioxide (SO2)	Emitted when sulfur-containing fuel is burned; industrial processes, such as natural gas and petroleum extraction, oil refining, and metal processing; volcanic activity and from geothermal fields	Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits; acid rain

Source: California Air Resources Board, "Common Air Pollutants", https://ww2.arb.ca.gov/resources/common-air-pollutants (accessed January 2021).

Ozone

Ozone (O3) is a gas formed when volatile organic compounds (VOCs) and oxides of nitrogen (NOx), both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months, when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

Volatile Organic Compounds

VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including ozone. VOCs themselves are not criteria pollutants; however, they contribute to the formation of ozone and are regulated under State policies.

Respirable Particulate Matter

Respirable particulate matter (PM10) consists of extremely small, suspended particles or droplets 10 micrometers (µm) or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, the abrasion of tires and brakes, and construction activities.

Fine Particulate Matter

PM2.5 refers to fine particulate matter that is 2.5 µm or smaller in size. Sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles, such as buses and trucks. These fine particles are also formed in the atmosphere when gases, such as sulfur dioxide (SO2), NOx, and VOCs are transformed in the air by chemical reactions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and because motor vehicles operating at slow speeds are the primary source of CO in the Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

Nitrogen Dioxide

Nitrogen dioxide (NO2) is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO2 is also a byproduct of fuel combustion. The principle form of NO2 produced by combustion is NO, but NO reacts quickly to form NO2, creating the mixture of NO and NO2 referred to as NOx. NO2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NOx is only potentially irritating. NO2 absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.

Lead

Lead (Pb) occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles, such as race cars, that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries; sanding or removal of lead-based paint; ink; ceramics; ammunition; and secondary lead smelters.

Sulfur Dioxide

SO2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of the burning of high-sulfur-content fuel oils and coal, as well as from chemical processes occurring at chemical plants and refineries. When SO2 oxidizes in the atmosphere, it forms sulfates (SO4).

Federal

The USEPA sets national vehicle and stationary source emission standards; oversees approval of all SIPs; provides research and guidance for air pollution programs; and sets National Ambient Air Quality Standards (NAAQS). The NAAQS for the six CAPs are shown in **Table 2: Ambient Air Quality Standards** and were identified from provisions of the 1970 CAA. The sections of the CAA that are most applicable to the Project include Title I: Nonattainment Provisions and Title II: Mobile Source Provisions.

The CAA and the promulgated standards have evolved as a living document over time as research into the effects of air pollution has enhanced regulatory understanding of the associated issues. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. On the national level, the USEPA designates regions as achieving “attainment” or suffering from “nonattainment” of the NAAQS based on air quality monitoring data. Regions that are designated as being in nonattainment are responsible for devising localized strategies for reducing emissions of CAPs and achieving regional attainment within a predetermined timeframe set by the USEPA.

The NAAQS were further amended in July 1997 to include an 8-hour standard for ozone and to adopt an NAAQS for PM2.5. The NAAQS were amended again in September 2006 to include an established methodology for calculating PM2.5, as well as to revoke the annual PM10 threshold. Additional revisions to the AAQS may be implemented in the future as the science of air quality progresses.

Table 2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O3)	1 hour	0.09 ppm (180 μg/m^3)	Ultraviolet photometry	—	Same as primary standard	Ultraviolet photometry
	8 hours	0.07 ppm (137 μg/m^3)		0.075 ppm (147 μg/m^3)		
Respirable particulate matter (PM10)	24 hours	50 μg/m^3	Gravimetric or beta attenuation	150 μg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	20 μg/m^3		—		
Fine particulate matter (PM2.5)	24 hours	No separate State standard		35 μg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	12 μg/m^3	Gravimetric or beta attenuation	15 μg/m^3		
Carbon monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Nondispersive infrared photometry (NDIR)	9 ppm (10 mg/m^3)	None	NDIR
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen dioxide (NO2)	Annual arithmetic mean	0.03 ppm (57 μg/m^3)	Gas phase chemilumi-nescence	0.053 ppm (100 μg/m^3)	Same as primary standard	Gas phase chemilumi-nescence
	1 hour	0.18 ppm (339 μg/m^3)		0.100 ppm (188 μg/m^3)		

Source: California Air Resources Board website at: http://www.arb.ca.gov/research/aaqs/aaqs.htm (accessed January 2021).
Note: ppm = parts per million.

State

The California Clean Air Act, signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both State and federal air pollution control programs within California. In this capacity, CARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs.

CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions and the CAAQS currently in effect for each of the criteria pollutants, as well as other pollutants recognized by the State. The CAAQS are provided in **Table 2**. It should be noted that the CAAQS are generally more stringent than the NAAQS, reflecting California's diligent efforts toward reducing air pollution and improving air quality.

Regional

In California, jurisdiction over air quality management, enforcement, and planning divided into 35 geographic regions. Within each region, a local air district is responsible for oversight of air quality monitoring, modeling, permitting, and enforcement to ensure that regulatory violations are avoided wherever possible.

The Project site is located within the Salton Sea Air Basin (SSAB or Basin) and is under the SCAQMD's jurisdiction. The SSAB is within one of the hottest and driest parts of California and is characterized by hot, dry summers, relatively mild winters and scant rainfall of two to six inches per year. Differences in the season are by temperature rather than perception.

South Coast Air Quality Management District

SCAQMD shares responsibility with CARB for ensuring that all State and federal AAQS are achieved and maintained over an area of approximately 10,743 square miles. This area includes the South Coast and Salton Sea Air Basins, all of Orange County, and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. It does not include the Antelope Valley or the nondesert portion of western San Bernardino County.

SCAQMD is responsible for controlling emissions, primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the air basins. SCAQMD, in coordination with the Southern California Association of Governments (SCAG), is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the air basins. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as being in nonattainment of the NAAQS or CAAQS. The term "nonattainment area" is used to refer to an air basin in which one or more AAQS are exceeded. SCAQMD also prepares the SIP for its jurisdiction and promulgates rules and regulations. The SIP includes strategies and tactics to be used to attain the federal ozone standards in the Basin. The SIP elements are taken from the most recent AQMP.

SCAQMD approved a Final 2016 AQMP on March 3, 2017.[2] The 2016 AQMP includes transportation control measures developed by SCAG from its 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, as well as the integrated strategies and measures needed to meet the NAAQS. The 2016 AQMP demonstrates attainment of the 1-hour and 8-hour ozone NAAQS, as well as the latest 24-hour and annual PM2.5 standards.

On September 3, 2020, SCAG's Regional Council adopted an updated RTP/SCS known as the 2020 – 2045 RTP/SCS or ConnectSoCal. As with the 2016 – 2040 RTP/SCS, the purpose of the 2020 – 2045 RTP/SCS is to meet the mobility needs of the six-county SCAG region over the subject planning period through a roadmap identifying sensible ways to expand transportation options, improve air quality and bolster Southern California long-term economic viability. On October 30, 2020, CARB accepted SCAG's determination that the SCS met the applicable state greenhouse gas emissions targets. The goals and policies of the 2020 – 2045 RTP/SCS are similar to, and consistent with, those of the 2016 – 2040 RTP/SCS.

SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the air basins by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board that limit the emissions that can be generated by various uses/activities and identifying specific pollution-reduction measures that must be implemented in association with various uses and activities. These rules regulate not only the emissions of the federal and State criteria pollutants, but also toxic air contaminants (TACs) and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

Among the SCAQMD rules applicable to the Project are Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings). Rule 403 requires the use of stringent best available control measures (BACMs) to minimize PM10 emissions during grading and construction activities. Rule 1113 limits the VOC content of coatings, with a VOC content limit for flat coatings of 50 grams per liter (g/L).[3] Additional details regarding these rules and other potentially applicable rules are presented as follows.

Rule 402 (Nuisance). This rule states that a "person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or

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2 SCAQMD, "Final 2016 Air Quality Management Plan" (2016), https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15, accessed January 2021,

3 SCAQMD, "Rule 1113 Architectural Coating" (amended September 6, 2013), http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf, accessed January 2021.

safety of any such persons or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."[4]

Rule 403 (Fugitive Dust). This rule requires fugitive dust sources to implement BACMs for all sources and prohibits all forms of visible particulate matter from crossing any property line. BACMs may include application of water or chemical stabilizers to disturbed soils covering haul vehicles; restricting vehicle speeds on unpaved roads to 15 miles per hour (mph); sweeping loose dirt from paved site-access roadways; cessation of construction activity when winds exceed 25 mph; and establishing a permanent ground cover on finished sites. SCAQMD Rule 403 is intended to reduce PM10 emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust (see also Rule 1186).

Rule 1113 (Architectural Coatings). This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters). This rule requires manufacturers, distributors, retailers, refurbishers, installers, and operators of new and existing units to reduce NOx emissions from natural-gas-fired water heaters, boilers, and process heaters as defined in this rule.

Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations). This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

Stationary emissions sources subject to these rules are regulated through SCAQMD's permitting process. Through this permitting process, SCAQMD also monitors the amount of stationary emissions being generated and uses this information in developing AQMPs.

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4 SCAQMD, "Rule 402—Nuisance," http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf, accessed January 2021.

ENVIRONMENTAL SETTING

Regional Air Quality

USEPA is the federal agency responsible for overseeing the country's air quality and setting the NAAQS for the CAPs. The NAAQS were devised based on extensive modeling and monitoring of air pollution across the country; they are designed to protect public health and prevent the formation of atmospheric ozone. Air quality of a region is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels do not exceed the applicable concentration threshold. **Table 2** presents the federal and State AAQS.

As noted previously, CARB is the State agency responsible for setting the CAAQS. Air quality of a region is considered to be in attainment of the CAAQS if the measured ambient air pollutant levels for O3, CO, NO2, SO2, PM10, PM2.5, and Pb are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive 3-year period. The CAAQS are also presented in **Table 2**.

For evaluation purposes, the SCAQMD territory is divided into 38 source receptor areas (SRAs). These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area. The Project site is within SRA 30, Coachella Valley.[5] The nearest air monitoring station SCAQMD operates is located at 46990 Jackson Street.[6] This station monitors O3, PM10 and PM2.5. Additionally, the next closest station located at 590 E. Racquet Club Avenue monitors NO2. Carbon monoxide is not monitored by the two stations. **Table 3: Ambient Air Quality Monitoring Summary** summarizes published monitoring data from these two stations from 2017 through 2019, the most recent 3-year period available. The data shows that during the past few years, the region has exceeded the O3, PM10 and PM2.5 standards.

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5 SCAQMD, *General Forecast Areas and Air Monitoring Areas,* map, http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf, accessed January 2021.

6 South Coast Air Quality Management District, *Site Survey Report for Indio-Jackson Street,* AQS ID 060652002, https://www3.epa.gov/ttn/amtic/files/networkplans/casc2015pland_Indio.pdf, accessed January 2021.

Table 3
Air Quality Monitoring Summary

Air Pollutant	Average Time (Units)	2017	2018	2019
Ozone (O_3)	State Max 1 hour (ppm)	0.107	0.106	0.103
	Days > CAAQS threshold (0.09 ppm)	8	4	4
	National Max 8 hour (ppm)	0.093	0.091	0.087
	Days > NAAQS threshold (0.075 ppm)	44	49	43
	State Max 8 hour (ppm)	0.094	0.091	0.088
	Days > CAAQS threshold (0.07 ppm)	47	52	47
Carbon monoxide (CO)		—	—	—
Nitrogen dioxide (NO_2)	National Max 1 hour (ppm)	0.043	0.043	0.041
	Days > NAAQS threshold (0.100 ppm)	0	0	0
	State Max 1 hour (ppm)	0.042	0.042	0.041
	Days > CAAQS threshold (0.18 ppm)	0	0	0
Respirable particulate matter (PM_{10})	National Max (μg/m3)	198.6	336.0	141.9
	National Annual Average (μg/m3)	34.8	34.8	28.5
	Days > NAAQS threshold (150 μg/m3)	1	2	0
	State Max (μg/m3)	143.1	149.6	80.3
	State Annual Average (μg/m3)	—	38.9	28.9
	Days > CAAQS threshold (50 μg/m3)	10	14	4
Fine particulate matter ($PM_{2.5}$)	National Max (μg/m3)	18.8	28.7	15.0
	National Annual Average (μg/m3)	—	8.3	7.3
	Days > NAAQS threshold (35 μg/m3)	0	0	0
	State Max (μg/m3)	18.8	28.7	15.0
	State Annual Average (μg/m3)	—	8.3	7.4

Source: CARB, iADAM: Air Quality Data Statistics.
Note: (—) = Data not available.

USEPA and the CARB designate air basins where AAQS are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

The current attainment designations for the Basin are shown in **Table 4: Salton Sea Air Basin Attainment Status**. The Basin is currently designated as being in nonattainment at the federal level for O3 and PM10; and at the State level for O3 and PM10.

Table 4
Salton Sea Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone (O3)	Nonattainment	Nonattainment
Carbon monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen dioxide (NO2)	Attainment	Unclassified/Attainment
Sulfur dioxide (SO2)	Attainment	Unclassified/Attainment
Respirable particulate matter (PM10)	Nonattainment	Nonattainment
Fine particulate matter (PM2.5)	Attainment	Unclassified/Attainment

Source: California Air Resources Board (CARB) Area Designation Maps / State and National, http://www.arb.ca.gov/desig/adm/adm.htm, accessed January 2021,

Sensitive Receptors

SCAQMD considers a sensitive receptor to be a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. Sensitive receptors are identified near sources of air pollution to determine the potential for health hazards. Locations evaluated for exposure to air pollution would include but are not limited to residences, schools, hospitals, and convalescent facilities. There are no identified sensitive receptors within 500 feet of the Project site.

METHODOLOGY

Construction

Construction of the Project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment and through vehicle trips generated from workers and haul trucks traveling to and from the Project site. In addition, fugitive dust emissions would result from various soil-handling activities. Mobile-source emissions, primarily NOx, would result from the use of construction equipment, such as dozers and loaders. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The Project would be required comply with SCAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located with SCAB. Therefore, the following condition—which would be required to reduce fugitive dust in compliance with SCAQMD Rule 403—was included in CalEEMod as a regulatory compliance measure:

- **Control Efficiency of PM10**. During construction, methods and techniques should be applied to various operations or equipment when appropriate to reduce estimated emissions related to particulate matter. This includes replacing ground cover in disturbed areas as quick as possible, yielding to emission reduction efficiency of 15 – 49 percent.[7]

In addition, SCAQMD Staff recommends that the Lead Agency require the use of Tier 4 construction equipment of 50 horsepower or greater during construction. Alternative, applicable strategies. Such equipment should be outfitted with Best Available Control Technology (BACT) devices, but not limited to, a CARB certified Level 3 Diesel Particulate Filters (DPF). Level 3 DPFs are capable of achieving at least an 85 percent reduction in particulate matter emissions.[8] Therefore, the following condition was included in CalEEMod as a regulatory compliance measure:

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7 SCAQMD, CEQA Handbook, Tables 11-4, p. 11-15 and A11-9-A, page A11-77, http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-sample-construction-scenario-report.pdf, accessed January 2021.

8 California Air Resources Board, Verification Procedure: Stationary, https://ww2.arb.ca.gov/our-work/programs/verification-procedure-warranty-and-use-compliance-requirements-use-strategies-4, accessed January 2021.

- **Construction Equipment Controls**. During construction, all off-road construction equipment greater than 50 horsepower shall meet USEPA Tier 4 emission standards with Level 3 DPF to minimize emissions of NOx associated with diesel construction equipment.

The emissions are estimated using the CalEEMod (Version 2016.3.2) software, an emissions inventory software program recommended by SCAQMD. The emissions are estimated using the SCAQMD-recommended CalEEMod software. CalEEMod is based on outputs from the CARB off-road emissions model (OFFROAD) and the CARB on-road vehicle emissions model (EMFAC), which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. The input values used in this analysis are based on conservative assumptions in CalEEMod, with appropriate, Project-specific adjustments based on equipment types and expected construction activities. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in **Attachment A**.

Operation

Operation of the proposed Specific Plan, which includes the Project, has the potential to generate criteria pollutant emissions through vehicle trips traveling to and from the Project site and the NorthStar Specific Plan area. In addition, emissions would result from area sources on site, such as natural gas combustion, landscaping equipment, and use of consumer products.

Operational emissions were estimated using the CalEEMod software, which was used to forecast the daily regional emissions from area sources that would occur during long-term proposed Specific Plan operations. In calculating mobile-source emissions, estimates from the adopted and proposed Specific Plans' traffic analysis[9]were assumed in the modeling.

Area-source emissions are based on natural gas (building heating and water heaters), landscaping equipment, and consumer product (including paint) usage rates provided in CalEEMod. Natural gas usage factors in CalEEMod are based on the California Energy Commission's California Commercial End Use Survey data set, which provides energy demand by building type and climate zone.

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9 Fehr & Peers, NorthStar Specific Plan EIR Addendum Vehicles Miles Traveled (VMT) Analysis Memo, January 28, 2021.

SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Significance Criteria

The determination of a project's significance on air quality shall be made considering the factors provided in the SCAQMD *CEQA Air Quality Handbook* (Handbook). The City has not adopted specific Citywide significance thresholds for air quality impacts; rather, the thresholds and methodologies contained in the SCAQMD Handbook for both construction and operational emissions are utilized for evaluating projects in the City. These thresholds are described below.

Daily Emissions Thresholds

SCAQMD has identified thresholds to determine the significance of impacts to regional air quality for construction activities and project operation, as shown in **Table 5: Mass Daily Emissions Thresholds.**

Table 5
Mass Daily Emissions Thresholds

Pollutant	Construction	Operational
	pounds/day	
Volatile Organic Compounds (VOC)	75	75
Nitrogen dioxide (NOx)	100	100
Carbon monoxide (CO)	550	550
Sulfur dioxide (SOx)	150	150
Respirable particulate matter (PM_{10})	150	150
Fine particulate matter ($PM_{2.5}$)	55	55

Source: SCAQMD, CEQA Air Quality Handbook (November 1993), https://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf
For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

Localized Significance Thresholds

SCAQMD set forth local significance thresholds in its Final *Localized Significance Threshold (LST) Methodology* (LST Methodology)[10] guidance document for short-duration construction activities. SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of a project site. LSTs are applicable to projects at the project-specific level and are not applicable regional projects such as General Plans. Moreover, SCAQMD recommends using the LST mass rate look-up tables only for projects that are less than or equal to five acres. The Project is located on a

10 South Coast Air Quality Management District, *Final Localized Significance Threshold (LST) Methodology,* (June 2003, rev. July 2008).

41.4-acre site and is included as part of the SP addendum. Localized air quality impacts were not analyzed within Specific Plan EIR. Moreover, there are no sensitive receptors within 500 feet of the Project site. For these reasons, localized air quality impacts are not included in this analysis.

Toxic Air Contaminants

As set forth in the SCAQMD Handbook, the determination of significance of a project with respect TACs shall be made on a case-by-case basis, considering the following factors:

- Regulatory framework for toxic materials and process involved;
- Proximity of TACs to sensitive receptors;
- Quantity, volume, and toxicity of the contaminants expected to be emitted;
- Likelihood and potential level of exposure; and
- Degree to which project design will reduce risk of exposure.

Cumulative Threshold

SCAQMD recommends that a project be considered to result in a cumulatively considerable impact to air quality if any construction-related emissions and operational emissions from individual development projects exceed the mass daily emissions thresholds for individual projects.[11]

The SCAQMD neither recommends quantified analyses of the emissions generated by a set of cumulative development projects nor provides thresholds of significance to be used to assess the impacts associated with these emissions.

A project is also considered to result in a cumulatively considerable contribution to significant impacts if the population and employment projections for the project exceed the rate of growth defined in SCAQMD's AQMP.

IMPACT ANALYSIS

NorthStar EIR Air Quality Findings

As discussed previously, the proposed Project is included as part of the proposed Specific Plan amendment. The NorthStar Specific Plan Environmental Impact Report (certified Specific Plan EIR) was approved by the Riverside County Board of Supervisors on April 4, 2006. The air quality chapter of the certified Specific Plan EIR analyzed impacts related to air quality emissions associated with construction

11 SCAQMD, *White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions*, board meeting, Agenda No. 29 (September 5, 2003), Appendix D, p. D-3.

and operation of the developments proposed under the adopted Specific Plan. The air quality chapter found that construction under the adopted Specific Plan could generate excessive emissions of PM10 of which the Coachella Valley is in nonattainment. The operational emissions presented in the Specific Plan EIR are shown in **Table 6: Adopted Specific Plan Operational Emissions**. As shown, the certified Specific Plan EIR found that operation under the Specific Plan would result in exceedances of SCAQMD thresholds for VOCs, NOx, CO, and PM10. The EIR did not analyze operational emissions associated with PM2.5 for the adopted Specific Plan.

Table 6
Adopted Specific Plan Operational Emissions

Source	VOC	NOx	CO	SOx	PM10	PM 2.5
	pounds/day					
Area	50	17	15	<1	<1	—
Mobile	260	294	3,126	2	366	—
Total	*310*	*312*	*3,139*	*3*	*366*	—
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	—

Source: NorthStar Specific Plan Environmental Impact Report, March 2006.

Though the certified Specific Plan EIR included mitigation measures to reduce construction and operational emissions, it found that no reasonable levels of mitigation could reduce emissions to a less than significant level. Nevertheless, the certified Specific Plan EIR determined that impact significance from growth-related emissions should not be solely related to the size of the project or the magnitude of its emissions, but rather whether such growth has been properly anticipated in the air quality planning process. The certified Specific Plan EIR found that the adopted Specific Plan will improve the jobs/housing imbalance within the Coachella Valley and is consistent with general plans and growth assumptions for the area. As such, a statement of overriding consideration with regard to air quality emissions was warranted. A Statement of Overriding Considerations was adopted by the Board of Supervisors at the time the Specific Plan EIR was certified.

Proposed Project Findings

Emissions of air pollutants were estimated for construction and operation of the Arena. In California, the California Air Pollution Control Officer's Association recommends the use CalEEMod to calculate and organize emissions data for new development projects. CalEEMod is a program that relies on project-specific information pertaining to geographic setting, utility service provision, construction scheduling and equipment inventory, and operational design features to generate estimates of air pollutant and GHG emissions. Information needed to parameterize the Project in CalEEMod was obtained from the construction engineer and the Project architect.

Table 7: Arena Construction Schedule provides the dates and durations of each of the activities that will take place during construction of the Arena, as well as a brief description of the scope of work. Future dates represent approximations based on the general Project timeline and are subject to change pending unpredictable circumstances that may arise.

Table 7
Arena Construction Schedule

Construction Activity	Approximate Start Date	Approximate End Date	Duration (Days)	Description
Grading	3/1/2021	5/30/2021	65	Export of approximately 30,000 cubic yards of dirt
Building Construction – Concrete Structure	5/1/2021	11/3/2021	133	Construction of concrete structure
Building Construction – Steel Erection	11/4/2021	5/10/2022	134	Erection of steel support system
Building Construction – Interior/Exterior	5/11/2022	11/14/2022	134	Interior and exterior construction of Arena
Paving	5/1/2022	9/1/2022	89	Paving of asphalt surfaces
Architectural Coating	12/20/2021	5/31/2022	134	Application of architectural coatings to building materials

*Note: Refer to **Attachment A.1 (Construction Summer)** and **Attachment A.2 (Construction Winter),** Section 3.0: Construction Detail.*

Construction

An assessment of air pollutant emissions associated with the Arena was prepared utilizing the construction schedule in **Table 7**. **Table 8: Arena Construction Diesel Equipment Inventory** displays the construction equipment required for each activity described in **Table 7**. As mentioned above, SCAQMD staff recommends that the Lead Agency require the use of Tier 4 construction equipment of 50 horsepower or greater during construction. Additionally, the proposed Project would be required to reduce fugitive dust in compliance with SCAQMD Rule 403 (Fugitive Dust) and limit VOC content limit with adherence to Rule 1113 (Architectural Coatings).

Maximum daily emissions of air pollutants during construction of the Project were calculated using CalEEMod. **Table 9: Maximum Arena Construction Emissions** identifies daily emissions that are estimated for peak construction days for each construction year. It is important to note, the emissions presented in **Table 9** include regulatory compliance measures such as construction equipment controls (Tier 4 emissions standards with Level 3 DPF) and control efficiency of PM10 (dust control measures). Based on the modeling, emissions due to construction would not exceed regional VOC, NOx, CO, SOx, PM10, and PM2.5 concentration thresholds. All criteria air pollutants would be below SCAQMD construction thresholds.

Table 8
Arena Construction Diesel Equipment Inventory

Phase	Off-Road Equipment Type	Amount	Daily Hours	Horsepower [HP] (Load Factor)
Grading	Graders	1	8	187 (0.41)
	Off-Highway Trucks	2	8	402 (0.38)
	Off-Highway Trucks	2	8	350 (0.38)
	Rollers	2	8	80 (0.38)
	Rubber Tired Dozers	2	8	247 (0.40)
	Scrapers	6	8	367 (0.48)
	Tractors/Loaders/Backhoes	2	8	97 (0.37)
Building Construction – Concrete Structure	Bore/Drill Rigs	2	8	221 (0.50)
	Forklifts	4	8	89 (0.20)
	Generator Sets	7	8	84 (0.74)
	Off-Highway Trucks	2	8	350 (0.38)
	Off-Highway Trucks	4	8	402 (0.38)
	Rollers	1	8	80 (0.38)
	Tractors/Loaders/Backhoes	4	7	97 (0.37)
Building Construction – Steel Erection	Cranes	2	7	270 (0.29)
	Cranes	2	7	225 (0.29)
	Forklifts	3	8	89 (0.20)
	Generator Sets	8	8	84 (0.74)
Building Construction – Interior/Exterior	Cranes	2	7	225 (0.29)
	Forklifts	6	8	89 (0.20)
	Forklifts	10	8	49 (0.20)
	Off-Highway Trucks	2	8	402 (0.38)
	Off-Highway Trucks	2	8	350 (0.38)
Architectural Coating	Air compressors	1	6	78 (0.48)
Paving	Pavers	1	8	130 (0.42)
	Rollers	2	8	80 (0.38)
	Rubber Tired Dozers	4	8	247 (0.40)
	Tractors/Loaders/Backhoes	2	8	97 (0.37)

*Refer to **Attachment A.1 (Proposed Summer)** and **Attachment A.2 (Proposed Winter),** Section 3.0: Construction Detail, for equipment inventory information.*

Table 9
Maximum Arena Construction Emissions

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Year 2021	70	53	193	<1	16	6
Year 2022	71	33	99	<1	8	2
Maximum	71	53	193	<1	16	6
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod.
Notes:
CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; SOx = sulfur oxides; VOC = volatile organic compounds.
Refer to ***Attachment A.1 (Construction Summer)*** *and* ***Attachment A.2 Construction Winter),*** *Sections 3.2 through 3.7, for maximum on-site plus off-site emissions during both the summer and winter seasons.*

Operation

As discussed previously, the proposed Specific Plan amendment would reduce Planning Area 8 and make minor adjustments to the boundaries for Planning Area 4, 6, and 7 defined in the adopted Specific Plan to accommodate the addition of Planning Area 11, which would allow the development of the proposed Arena. The proposed Arena would be designed to host an American Hockey League (AHL) team and provide a year-round venue for other events in the Coachella Valley, including concerts, family shows, other sporting events, cultural events, conferences, and conventions. The Arena would contain a wide array of facilities and services, including spectator seating and suites, concessions/bars, clubs and meeting/community rooms; spectator support facilities such as food service/kitchens, merchandising and restrooms; team practice facilities and management offices; media support facilities; and event center operations support uses such as loading, staging, and marshalling areas, mechanical/electrical/plumbing space, and storage and maintenance facilities.

Operation of the Arena and the other proposed land uses under the proposed Specific Plan would generate criteria air pollutant emissions from area sources such as operation of landscaping equipment and use of consumer products, including solvents used in nonindustrial applications which emit VOCs during their product use, such as cleaning supplies. Additionally, operation of these uses would generate criteria air pollutant emissions from energy sources such as natural gas consumption associated with utility infrastructure for the proposed uses. Lastly, operation would generate criteria air pollutant emissions from mobile sources from vehicle trips traveling to and from the Specific Plan Area. Mobile emissions were calculated based on the data provided by the traffic analysis.[12] The VMT estimate for the Arena was analyzed based on event type and attendance level, including both patron and employee trips.

Operational emissions were analyzed for all the land uses proposed under the proposed Specific Plan, including the proposed Project. The results presented in **Table 10: Maximum Proposed Specific Plan Operational Emissions** are compared to the SCAQMD-established operational significance thresholds. It is important to note, emissions presented in **Table 10** include regulatory compliance measures such as compliance with green building standards. Operational emissions would result primarily from passenger vehicles traveling to and from the Specific Plan area. As shown in **Table 10**, the operational emissions would not exceed the regional SOx or PM2.5 concentration thresholds. However, the operational emissions would exceed the regional VOC, NOx, CO, and PM10, concentration thresholds.

Table 10
Maximum Proposed Specific Plan Operational Emissions

	VOC	NOx	CO	SOx	PM10	PM 2.5
Source	pounds/day					
Area	65	1	68	<1	<1	<1
Energy	2	15	11	<1	1	1
Mobile	56	221	546	2	151	41
Total	*123*	*237*	*625*	*2*	*153*	*43*
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**No**

Source: CalEEMod.
Notes: Totals in table may not appear to add exactly due to rounding in the computer model calculations.
CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; SOx = sulfur oxides; VOC = volatile organic compounds.
*Refer to **Attachment A.3 (Operation Summer)** and **Attachment A.4 (Operation Winter),** Section 2.2, for maximum operational emissions during both the summer and winter seasons.*

Toxic Air Contaminants

Project construction would result in short-term emissions of diesel particulate matter, which is a TAC. Off-road heavy-duty diesel equipment would emit diesel particulate matter over the course of the construction period. Project compliance with the CARB anti-idling measure, which limits idling to no more than 5 minutes at any location for diesel-fueled commercial vehicles, would further minimize diesel particulate matter emissions in the Project area.

Project operations would generate only minor amounts of diesel emissions from delivery trucks and incidental maintenance activities. Trucks would comply with the applicable provisions of the CARB Truck

12 Fehr & Peers, NorthStar Specific Plan EIR Addendum Vehicles Miles Traveled (VMT) Analysis Memo, January 28, 2021.

and Bus regulation to minimize and reduce emission from existing diesel trucks. In addition, operations would only result in minimal emissions of air toxics from maintenance or other ongoing activities, such as from the use of architectural coatings or household cleaning products. As a result, toxic or carcinogenic air pollutants are not expected to occur in any meaningful amounts in conjunction with operation of the proposed Project. Based on the uses expected on the Project site, potential long-term operational impacts associated with the release of TACs would be minimal and would not be expected to exceed the SCAQMD thresholds of significance.

Odors

Mandatory compliance with SCAQMD Rule 1113 would limit the amount of VOCs in architectural coatings and solvents. According to SCAQMD, while almost any source may emit objectionable odors, some land uses are more likely to produce odors because of their operation. Land uses more likely to produce odors include agriculture, chemical plants, composting operations, dairies, fiberglass molding manufacturing, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants. The Project does not contain any active manufacturing activities and would not convert current agricultural land to residential land uses. Therefore, objectionable odors would not be emitted by the proposed Project.

Any unforeseen odors generated by the Project will be controlled in accordance with SCAQMD Rule 402. As previously noted, Rule 402 prohibits the discharge of air contaminants that harm, endanger, or annoy individuals or the public; endanger the comfort, health or safety of individuals or the public; or cause injury or damage to business or property. Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan.

Cumulative

Development of the Project in conjunction with the related projects near the Project site would result in an increase in construction and operational emissions. However, cumulative air quality impacts from construction, based on SCAQMD guidelines, are not analyzed in a manner similar to project-specific air quality impacts. Instead, the SCAQMD recommends that a project’s potential contribution to cumulative impacts should be assessed utilizing the same significance criteria as those for project-specific impacts. According to the SCAQMD, individual development projects that generate construction or operational emissions that exceed the SCAQMD recommended daily regional or localized thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

With the implementation of regulatory compliance measures such as Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coating), the Project’s construction emissions are not expected to significantly contribute to cumulative emissions for CO, NOx, PM10, and PM2.5. However, as discussed above the proposed Specific Plan land uses, which includes the proposed Arena, would exceed the SCAQMD threshold the regional VOC, NOx, CO, and PM10, concentration thresholds for operation. As such, the proposed Specific Plan's contribution to cumulative air quality emissions in combination with the related projects would be cumulatively considerable.

CONSISTENCY WITH NORTHSTAR EIR

As discussed previously, the certified Specific Plan EIR found that construction under the adopted Specific Plan could generate excessive emissions of PM10 of which the Coachella Valley is in nonattainment. Moreover, the certified Specific Plan EIR found that operation under the adopted Specific Plan would result in exceedances of SCAQMD thresholds for VOCs, NOx, CO, and PM10. However, since the adopted Specific Plan will improve the jobs/housing imbalance within the Coachella Valley and is consistent with general plans and growth assumptions for the area and a Statement of Overriding Considerations was adopted by the Board of Supervisors with regard to the contribution of the project to cumulative air quality impacts.

As shown in **Table 9** above, construction of the Arena would not exceed any of the SCAQMD thresholds. However, **Table 10** shows that operation of the land uses proposed under the proposed Specific Plan would exceed the SCAQMD thresholds for VOCs, NOx, CO, and PM10, but would not exceed operational thresholds for SOx or PM2.5. **Table 11: Adopted Specific Plan and Proposed Specific Plan Operational Emissions** compares the total operational emissions under the proposed Specific Plan and the operational emissions set forth in the certified Specific Plan EIR for the adopted Specific Plan. As shown, the proposed Specific Plan would result in a net decrease in emissions compared to the adopted Specific Plan. Moreover, consistent with the certified Specific Plan EIR, the proposed Specific Plan would improve the jobs/housing imbalance within Coachella Valley by providing an arena that would generate jobs in an area heavily developed with residential uses. As such, the proposed Specific Plan would result in similar air quality impacts as compared to the adopted Specific Plan.

Table 11
Adopted Specific Plan and Proposed Specific Plan Operational Emissions

Source	VOC	NOx	CO	SOx	PM10	PM 2.5
	pounds/day					
Total Adopted Specific Plan	**310**	**312**	**3,139**	**3**	**366**	**—**
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	*Yes*	*Yes*	*Yes*	*No*	*Yes*	—
Total Proposed Specific Plan	**123**	**237**	**625**	**2**	**153**	**43**
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*No*
New Significant Impact?	**No**	**No**	**No**	**No**	**No**	—

Sources: NorthStar Specific Plan Environmental Impact Report, March 2006; CalEEMod.
Notes: Totals in table may not appear to add exactly due to rounding in the computer model calculations.
CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; SOx = sulfur oxides; VOC = volatile organic compounds.
Refer to ***Attachment A.3 (Operation Summer)*** *and* ***Attachment A.4 (Operation Winter),*** *Section 2.2, for maximum operational emissions during both the summer and winter seasons.*

Attachment A

CalEEMod Air Quality Emission Output Files

A.1
Construction Summer

Riverside Arena Construction

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	3,000.00	Space	27.00	1,200,000.00	0
Arena	295.00	1000sqft	14.40	295,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is 41.4 acres. Assumes construction of Arena (260,000 sq. ft.) & Event Center Hockey Training Facility (35,000 sq. ft.).

Construction Phase - No demolition required as site is currently vacant. Construction schedule provided by applicant.

Off-road Equipment -

Off-road Equipment - Anticipated construction equipment for concrete phase.

Off-road Equipment - Anticipated construction equipment for interior/exterior construction phase.

Off-road Equipment - Anticipated construction equipment for steel erection phase.

Off-road Equipment - Anticipated construction equipment for grading phase.

Off-road Equipment - Anticipated construction equipment for paving phase.

Trips and VMT - Default estimates assumed for worker/vendor/hauling trips.

On-road Fugitive Dust -

Grading - Approximately 30,000 cubic yards of soil would be exported.

Vehicle Trips - Assumed daily trip rate of 61.06 based on traffic data (21,232,770 Annual VMT).

Construction Off-road Equipment Mitigation - As recommended by SCAQMD, alternative applicable strategies include construction equipment with Tier 4 emissions standards.

Area Mitigation - Consistent with SCAQMD Rule 1113 assumed VOC content of 50 grams per liter for architectural coatings for building envelope.

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	23.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	55.00	117.00
tblConstructionPhase	NumDays	740.00	133.00
tblConstructionPhase	NumDays	740.00	134.00
tblConstructionPhase	NumDays	740.00	134.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	NumDays	55.00	89.00
tblGrading	MaterialExported	0.00	30,000.00
tblLandUse	LotAcreage	94.82	14.40
tblOffRoadEquipment	HorsePower	231.00	270.00
tblOffRoadEquipment	HorsePower	231.00	225.00
tblOffRoadEquipment	HorsePower	231.00	225.00
tblOffRoadEquipment	HorsePower	89.00	49.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblVehicleTrips	ST_TR	10.71	61.06
tblVehicleTrips	SU_TR	10.71	61.06
tblVehicleTrips	WD_TR	10.71	61.06

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	73.9130	226.3295	163.3270	0.4871	26.8483	8.3485	35.1968	9.4934	7.7772	17.2706	0.0000	48,087.5809	48,087.5809	10.1607	0.0000	48,341.5991
2022	78.8799	107.8314	92.6337	0.2457	7.7301	4.2622	11.9922	2.0784	4.0228	6.1012	0.0000	24,317.6940	24,317.6940	4.6063	0.0000	24,432.8503
Maximum	**78.8799**	**226.3295**	**163.3270**	**0.4871**	**26.8483**	**8.3485**	**35.1968**	**9.4934**	**7.7772**	**17.2706**	**0.0000**	**48,087.5809**	**48,087.5809**	**10.1607**	**0.0000**	**48,341.5991**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	lb/day										lb/day					
2021	69.9077	52.6162	192.9010	0.4871	15.2608	0.6426	15.9034	4.9955	0.6367	5.6322	0.0000	48,087.5809	48,087.5809	10.1607	0.0000	48,341.5991
2022	71.3707	32.8168	99.0360	0.2457	7.7301	0.2794	8.0094	2.0784	0.2751	2.3534	0.0000	24,317.6940	24,317.6940	4.6063	0.0000	24,432.8503
Maximum	**71.3707**	**52.6162**	**192.9010**	**0.4871**	**15.2608**	**0.6426**	**15.9034**	**4.9955**	**0.6367**	**5.6322**	**0.0000**	**48,087.5809**	**48,087.5809**	**10.1607**	**0.0000**	**48,341.5991**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**7.54**	**74.43**	**-14.06**	**0.00**	**33.51**	**92.69**	**49.33**	**38.87**	**92.27**	**65.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.8708	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Energy	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Mobile	24.1276	141.7824	166.3049	0.7155	45.2773	0.3781	45.6553	12.1127	0.3519	12.4647		73,414.3802	73,414.3802	4.4261		73,525.0335
Total	**33.2816**	**144.3599**	**168.8038**	**0.7310**	**45.2773**	**0.5749**	**45.8522**	**12.1127**	**0.5488**	**12.6615**		**76,504.4003**	**76,504.4003**	**4.4872**	**0.0566**	**76,633.4590**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Area	6.9004	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Energy	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Mobile	24.1276	141.7824	166.3049	0.7155	45.2773	0.3781	45.6553	12.1127	0.3519	12.4647		73,414.3802	73,414.3802	4.4261		73,525.0335
Total	**31.3112**	**144.3599**	**168.8038**	**0.7310**	**45.2773**	**0.5749**	**45.8522**	**12.1127**	**0.5488**	**12.6615**		**76,504.4003**	**76,504.4003**	**4.4872**	**0.0566**	**76,633.4590**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2021	5/28/2021	5	65	1
2	Building Construction - Concrete	Building Construction	5/1/2021	11/3/2021	5	133	2
3	Building Construction - Steel Erection	Building Construction	11/4/2021	5/10/2022	5	134	3
4	Architectural Coating	Architectural Coating	12/20/2021	5/31/2022	5	117	6
5	Paving	Paving	5/1/2022	9/1/2022	5	89	5
6	Building Construction - Interior/Exterior	Building Construction	5/11/2022	11/14/2022	5	134	4

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 422.5

Acres of Paving: 27

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 442,500; Non-Residential Outdoor: 147,500; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	2	8.00	402	0.38
Grading	Off-Highway Trucks	2	8.00	350	0.38
Grading	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	6	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Concrete	Bore/Drill Rigs	2	8.00	221	0.50
Building Construction - Concrete	Forklifts	4	8.00	89	0.20
Building Construction - Concrete	Generator Sets	7	8.00	84	0.74
Building Construction - Concrete	Off-Highway Trucks	2	8.00	350	0.38
Building Construction - Concrete	Off-Highway Trucks	4	8.00	402	0.38
Building Construction - Concrete	Rollers	1	8.00	80	0.38
Building Construction - Concrete	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction - Steel Erection	Cranes	2	7.00	270	0.29
Building Construction - Steel Erection	Cranes	2	7.00	225	0.29
Building Construction - Steel Erection	Forklifts	3	8.00	89	0.20
Building Construction - Steel Erection	Generator Sets	8	8.00	84	0.74
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Rubber Tired Dozers	4	8.00	247	0.40
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Interior/Exterior	Cranes	2	7.00	225	0.29
Building Construction - Interior/Exterior	Forklifts	6	8.00	89	0.20
Building Construction - Interior/Exterior	Forklifts	10	8.00	49	0.20
Building Construction - Interior/Exterior	Off-Highway Trucks	2	8.00	402	0.38
Building Construction - Interior/Exterior	Off-Highway Trucks	2	8.00	350	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	17	43.00	0.00	3,750.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Concrete	24	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Steel Erection	15	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	126.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Interior/Exterior	22	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.9959	0.0000	18.9959	7.3736	0.0000	7.3736			0.0000			0.0000
Off-Road	11.1428	119.4157	73.6372	0.1755		4.9320	4.9320		4.5374	4.5374		16,997.1653	16,997.1653	5.4972		17,134.5960
Total	**11.1428**	**119.4157**	**73.6372**	**0.1755**	**18.9959**	**4.9320**	**23.9279**	**7.3736**	**4.5374**	**11.9110**		**16,997.1653**	**16,997.1653**	**5.4972**		**17,134.5960**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2808	12.5398	1.6490	0.0435	1.0092	0.0382	1.0474	0.2766	0.0365	0.3132		4,611.5483	4,611.5483	0.2679		4,618.2447
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1678	0.0899	1.2302	3.4600e-003	0.3598	2.1900e-003	0.3620	0.0954	2.0100e-003	0.0974		344.9886	344.9886	8.3700e-003		345.1980
Total	**0.4486**	**12.6297**	**2.8792**	**0.0469**	**1.3689**	**0.0404**	**1.4093**	**0.3721**	**0.0385**	**0.4106**		**4,956.5369**	**4,956.5369**	**0.2762**		**4,963.4426**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4084	0.0000	7.4084	2.8757	0.0000	2.8757			0.0000			0.0000
Off-Road	2.1538	9.3332	82.4810	0.1755		0.2872	0.2872		0.2872	0.2872	0.0000	16,997.1653	16,997.1653	5.4972		17,134.5960
Total	**2.1538**	**9.3332**	**82.4810**	**0.1755**	**7.4084**	**0.2872**	**7.6956**	**2.8757**	**0.2872**	**3.1629**	**0.0000**	**16,997.1653**	**16,997.1653**	**5.4972**		**17,134.5960**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.2808	12.5398	1.6490	0.0435	1.0092	0.0382	1.0474	0.2766	0.0365	0.3132		4,611.5483	4,611.5483	0.2679		4,618.2447
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1678	0.0899	1.2302	3.4600e-003	0.3598	2.1900e-003	0.3620	0.0954	2.0100e-003	0.0974		344.9886	344.9886	8.3700e-003		345.1980
Total	**0.4486**	**12.6297**	**2.8792**	**0.0469**	**1.3689**	**0.0404**	**1.4093**	**0.3721**	**0.0385**	**0.4106**		**4,956.5369**	**4,956.5369**	**0.2762**		**4,963.4426**

3.3 Building Construction - Concrete - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.8590	71.7032	65.0972	0.1603		3.3095	3.3095		3.1386	3.1386		15,425.1051	15,425.1051	3.8008		15,520.1258
Total	**7.8590**	**71.7032**	**65.0972**	**0.1603**		**3.3095**	**3.3095**		**3.1386**	**3.1386**		**15,425.1051**	**15,425.1051**	**3.8008**		**15,520.1258**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5242	21.2681	3.7467	0.0538	1.2292	0.0347	1.2639	0.3541	0.0332	0.3873		5,670.3350	5,670.3350	0.4642		5,681.9390
Worker	2.4502	1.3128	17.9668	0.0506	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		5,038.4386	5,038.4386	0.1223		5,041.4957

Total	**2.9743**	**22.5809**	**21.7134**	**0.1043**	**6.4835**	**0.0667**	**6.5501**	**1.7477**	**0.0626**	**1.8103**		**10,708.7735**	**10,708.7735**	**0.5865**		**10,723.4347**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8629	8.0724	85.8273	0.1603		0.2484	0.2484		0.2484	0.2484	0.0000	15,425.1051	15,425.1051	3.8008		15,520.1258
Total	**1.8629**	**8.0724**	**85.8273**	**0.1603**		**0.2484**	**0.2484**		**0.2484**	**0.2484**	**0.0000**	**15,425.1051**	**15,425.1051**	**3.8008**		**15,520.1258**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5242	21.2681	3.7467	0.0538	1.2292	0.0347	1.2639	0.3541	0.0332	0.3873		5,670.3350	5,670.3350	0.4642		5,681.9390
Worker	2.4502	1.3128	17.9668	0.0506	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		5,038.4386	5,038.4386	0.1223		5,041.4957
Total	**2.9743**	**22.5809**	**21.7134**	**0.1043**	**6.4835**	**0.0667**	**6.5501**	**1.7477**	**0.0626**	**1.8103**		**10,708.7735**	**10,708.7735**	**0.5865**		**10,723.4347**

3.4 Building Construction - Steel Erection - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.6648	45.4522	42.2780	0.0788		2.2633	2.2633		2.1896	2.1896		7,522.5509	7,522.5509	1.0753		7,549.4327
Total	**4.6648**	**45.4522**	**42.2780**	**0.0788**		**2.2633**	**2.2633**		**2.1896**	**2.1896**		**7,522.5509**	**7,522.5509**	**1.0753**		**7,549.4327**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5242	21.2681	3.7467	0.0538	1.2292	0.0347	1.2639	0.3541	0.0332	0.3873		5,670.3350	5,670.3350	0.4642		5,681.9390
Worker	2.4502	1.3128	17.9668	0.0506	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		5,038.4386	5,038.4386	0.1223		5,041.4957
Total	**2.9743**	**22.5809**	**21.7134**	**0.1043**	**6.4835**	**0.0667**	**6.5501**	**1.7477**	**0.0626**	**1.8103**		**10,708.7735**	**10,708.7735**	**0.5865**		**10,723.4347**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.8486	3.6772	45.6830	0.0788		0.1131	0.1131		0.1131	0.1131	0.0000	7,522.5509	7,522.5509	1.0753		7,549.4327
Total	**0.8486**	**3.6772**	**45.6830**	**0.0788**		**0.1131**	**0.1131**		**0.1131**	**0.1131**	**0.0000**	**7,522.5509**	**7,522.5509**	**1.0753**		**7,549.4327**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5242	21.2681	3.7467	0.0538	1.2292	0.0347	1.2639	0.3541	0.0332	0.3873		5,670.3350	5,670.3350	0.4642		5,681.9390
Worker	2.4502	1.3128	17.9668	0.0506	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		5,038.4386	5,038.4386	0.1223		5,041.4957
Total	**2.9743**	**22.5809**	**21.7134**	**0.1043**	**6.4835**	**0.0667**	**6.5501**	**1.7477**	**0.0626**	**1.8103**		**10,708.7735**	**10,708.7735**	**0.5865**		**10,723.4347**

3.4 Building Construction - Steel Erection - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.2470	40.7162	41.4401	0.0788		1.9645	1.9645		1.9014	1.9014		7,522.0432	7,522.0432	1.0576		7,548.4824
Total	**4.2470**	**40.7162**	**41.4401**	**0.0788**		**1.9645**	**1.9645**		**1.9014**	**1.9014**		**7,522.0432**	**7,522.0432**	**1.0576**		**7,548.4824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4885	20.1693	3.4817	0.0533	1.2291	0.0291	1.2583	0.3540	0.0279	0.3819		5,621.9016	5,621.9016	0.4390		5,632.8774
Worker	2.2888	1.1807	16.5606	0.0487	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,854.4362	4,854.4362	0.1098		4,857.1812
Total	**2.7773**	**21.3500**	**20.0423**	**0.1020**	**6.4834**	**0.0602**	**6.5436**	**1.7477**	**0.0565**	**1.8042**		**10,476.3378**	**10,476.3378**	**0.5488**		**10,490.0586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8486	3.6772	45.6830	0.0788		0.1131	0.1131		0.1131	0.1131	0.0000	7,522.0432	7,522.0432	1.0576		7,548.4824
Total	**0.8486**	**3.6772**	**45.6830**	**0.0788**		**0.1131**	**0.1131**		**0.1131**	**0.1131**	**0.0000**	**7,522.0432**	**7,522.0432**	**1.0576**		**7,548.4824**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4885	20.1693	3.4817	0.0533	1.2291	0.0291	1.2583	0.3540	0.0279	0.3819		5,621.9016	5,621.9016	0.4390		5,632.8774
Worker	2.2888	1.1807	16.5606	0.0487	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,854.4362	4,854.4362	0.1098		4,857.1812
Total	**2.7773**	**21.3500**	**20.0423**	**0.1020**	**6.4834**	**0.0602**	**6.5436**	**1.7477**	**0.0565**	**1.8042**		**10,476.3378**	**10,476.3378**	**0.5488**		**10,490.0586**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**65.7824**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4916	0.2634	3.6048	0.0102	1.0542	6.4100e-003	1.0606	0.2796	5.9000e-003	0.2855		1,010.8969	1,010.8969	0.0245		1,011.5103
Total	**0.4916**	**0.2634**	**3.6048**	**0.0102**	**1.0542**	**6.4100e-003**	**1.0606**	**0.2796**	**5.9000e-003**	**0.2855**		**1,010.8969**	**1,010.8969**	**0.0245**		**1,011.5103**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**65.5932**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4916	0.2634	3.6048	0.0102	1.0542	6.4100e-003	1.0606	0.2796	5.9000e-003	0.2855		1,010.8969	1,010.8969	0.0245		1,011.5103
Total	**0.4916**	**0.2634**	**3.6048**	**0.0102**	**1.0542**	**6.4100e-003**	**1.0606**	**0.2796**	**5.9000e-003**	**0.2855**		**1,010.8969**	**1,010.8969**	**0.0245**		**1,011.5103**

3.5 Architectural Coating - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**65.7680**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4592	0.2369	3.3227	9.7800e-003	1.0542	6.2400e-003	1.0605	0.2796	5.7400e-003	0.2854		973.9792	973.9792	0.0220		974.5300
Total	**0.4592**	**0.2369**	**3.3227**	**9.7800e-003**	**1.0542**	**6.2400e-003**	**1.0605**	**0.2796**	**5.7400e-003**	**0.2854**		**973.9792**	**973.9792**	**0.0220**		**974.5300**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**65.5932**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4592	0.2369	3.3227	9.7800e-003	1.0542	6.2400e-003	1.0605	0.2796	5.7400e-003	0.2854		973.9792	973.9792	0.0220		974.5300
Total	**0.4592**	**0.2369**	**3.3227**	**9.7800e-003**	**1.0542**	**6.2400e-003**	**1.0605**	**0.2796**	**5.7400e-003**	**0.2854**		**973.9792**	**973.9792**	**0.0220**		**974.5300**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.2173	44.0766	25.4085	0.0503		2.1484	2.1484		1.9765	1.9765		4,874.0849	4,874.0849	1.5764		4,913.4943

Paving	0.7948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.0121**	**44.0766**	**25.4085**	**0.0503**		**2.1484**	**2.1484**		**1.9765**	**1.9765**		**4,874.0849**	**4,874.0849**	**1.5764**		**4,913.4943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0838	0.0432	0.6065	1.7800e-003	0.1924	1.1400e-003	0.1936	0.0510	1.0500e-003	0.0521		177.7899	177.7899	4.0200e-003		177.8904
Total	**0.0838**	**0.0432**	**0.6065**	**1.7800e-003**	**0.1924**	**1.1400e-003**	**0.1936**	**0.0510**	**1.0500e-003**	**0.0521**		**177.7899**	**177.7899**	**4.0200e-003**		**177.8904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6163	2.6706	27.5491	0.0503		0.0822	0.0822		0.0822	0.0822	0.0000	4,874.0849	4,874.0849	1.5764		4,913.4943
Paving	0.7948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4111**	**2.6706**	**27.5491**	**0.0503**		**0.0822**	**0.0822**		**0.0822**	**0.0822**	**0.0000**	**4,874.0849**	**4,874.0849**	**1.5764**		**4,913.4943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0838	0.0432	0.6065	1.7800e-003	0.1924	1.1400e-003	0.1936	0.0510	1.0500e-003	0.0521		177.7899	177.7899	4.0200e-003		177.8904
Total	**0.0838**	**0.0432**	**0.6065**	**1.7800e-003**	**0.1924**	**1.1400e-003**	**0.1936**	**0.0510**	**1.0500e-003**	**0.0521**		**177.7899**	**177.7899**	**4.0200e-003**		**177.8904**

3.7 Building Construction - Interior/Exterior - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7795	35.9314	31.8819	0.0778		1.7277	1.7277		1.5895	1.5895		7,534.0542	7,534.0542	2.4367		7,594.9709
Total	**4.7795**	**35.9314**	**31.8819**	**0.0778**		**1.7277**	**1.7277**		**1.5895**	**1.5895**		**7,534.0542**	**7,534.0542**	**2.4367**		**7,594.9709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4885	20.1693	3.4817	0.0533	1.2291	0.0291	1.2583	0.3540	0.0279	0.3819		5,621.9016	5,621.9016	0.4390		5,632.8774
Worker	2.2888	1.1807	16.5606	0.0487	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,854.4362	4,854.4362	0.1098		4,857.1812
Total	**2.7773**	**21.3500**	**20.0423**	**0.1020**	**6.4834**	**0.0602**	**6.5436**	**1.7477**	**0.0565**	**1.8042**		**10,476.3378**	**10,476.3378**	**0.5488**		**10,490.0586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0461	8.3873	40.6624	0.0778		0.1257	0.1257		0.1257	0.1257	0.0000	7,534.0542	7,534.0542	2.4367		7,594.9709
Total	**1.0461**	**8.3873**	**40.6624**	**0.0778**		**0.1257**	**0.1257**		**0.1257**	**0.1257**	**0.0000**	**7,534.0542**	**7,534.0542**	**2.4367**		**7,594.9709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4885	20.1693	3.4817	0.0533	1.2291	0.0291	1.2583	0.3540	0.0279	0.3819		5,621.9016	5,621.9016	0.4390		5,632.8774

Worker	2.2888	1.1807	16.5606	0.0487	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,854.4362	4,854.4362	0.1098		4,857.1812
Total	**2.7773**	**21.3500**	**20.0423**	**0.1020**	**6.4834**	**0.0602**	**6.5436**	**1.7477**	**0.0565**	**1.8042**		**10,476.3378**	**10,476.3378**	**0.5488**		**10,490.0586**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	24.1276	141.7824	166.3049	0.7155	45.2773	0.3781	45.6553	12.1127	0.3519	12.4647		73,414.3802	73,414.3802	4.4261		73,525.0335
Unmitigated	24.1276	141.7824	166.3049	0.7155	45.2773	0.3781	45.6553	12.1127	0.3519	12.4647		73,414.3802	73,414.3802	4.4261		73,525.0335

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	18,012.70	18,012.70	18012.70	21,233,230	21,233,230
Parking Lot	0.00	0.00	0.00		
Total	18,012.70	18,012.70	18,012.70	21,233,230	21,233,230

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	12.50	4.20	5.40	0.00	81.00	19.00	66	28	6
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Arena	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
NaturalGas Unmitigated	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Arena	26259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2832**	**2.5744**	**2.1625**	**0.0155**		**0.1957**	**0.1957**		**0.1957**	**0.1957**		**3,089.2990**	**3,089.2990**	**0.0592**	**0.0566**	**3,107.6571**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	26.259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2832**	**2.5744**	**2.1625**	**0.0155**		**0.1957**	**0.1957**		**0.1957**	**0.1957**		**3,089.2990**	**3,089.2990**	**0.0592**	**0.0566**	**3,107.6571**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	6.9004	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Unmitigated	8.8708	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1016					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0312	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Total	**8.8708**	**3.0600e-003**	**0.3364**	**3.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**		**0.7211**	**0.7211**	**1.8900e-003**		**0.7684**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6032					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2660					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Landscaping	0.0312	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Total	**6.9004**	**3.0600e-003**	**0.3364**	**3.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**		**0.7211**	**0.7211**	**1.8900e-003**		**0.7684**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

A.2

Construction Winter

Riverside Arena Construction

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	3,000.00	Space	27.00	1,200,000.00	0
Arena	295.00	1000sqft	14.40	295,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is 41.4 acres. Assumes construction of Arena (260,000 sq. ft.) & Event Center Hockey Training Facility (35,000 sq. ft.).

Construction Phase - No demolition required as site is currently vacant. Construction schedule provided by applicant.

Off-road Equipment -

Off-road Equipment - Anticipated construction equipment for concrete phase.

Off-road Equipment - Anticipated construction equipment for interior/exterior construction phase.

Off-road Equipment - Anticipated construction equipment for steel erection phase.

Off-road Equipment - Anticipated construction equipment for grading phase.

Off-road Equipment - Anticipated construction equipment for paving phase.

Trips and VMT - Default estimates assumed for worker/vendor/hauling trips.

On-road Fugitive Dust -

Grading - Approximately 30,000 cubic yards of soil would be exported.

Vehicle Trips - Assumed daily trip rate of 61.06 based on traffic data (21,232,770 Annual VMT).

Construction Off-road Equipment Mitigation - As recommended by SCAQMD, alternative applicable strategies include construction equipment with Tier 4 emissions standards

Area Mitigation - Consistent with SCAQMD Rule 1113 assumed VOC content of 50 grams per liter for architectural coatings for building envelope.

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	23.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	55.00	117.00
tblConstructionPhase	NumDays	740.00	133.00
tblConstructionPhase	NumDays	740.00	134.00
tblConstructionPhase	NumDays	740.00	134.00
tblConstructionPhase	NumDays	75.00	65.00
tblConstructionPhase	NumDays	55.00	89.00
tblGrading	MaterialExported	0.00	30,000.00
tblLandUse	LotAcreage	94.82	14.40
tblOffRoadEquipment	HorsePower	231.00	270.00
tblOffRoadEquipment	HorsePower	231.00	225.00
tblOffRoadEquipment	HorsePower	231.00	225.00
tblOffRoadEquipment	HorsePower	89.00	49.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblVehicleTrips	ST_TR	10.71	61.06
tblVehicleTrips	SU_TR	10.71	61.06
tblVehicleTrips	WD_TR	10.71	61.06

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	73.8232	226.1928	160.8503	0.4781	26.8483	8.3503	35.1986	9.4934	7.7790	17.2724	0.0000	47,168.5637	47,168.5637	10.2245	0.0000	47,424.1763
2022	78.8007	107.6020	89.5826	0.2371	7.7301	4.2633	11.9934	2.0784	4.0239	6.1023	0.0000	23,451.7741	23,451.7741	4.6419	0.0000	23,567.8223
Maximum	**78.8007**	**226.1928**	**160.8503**	**0.4781**	**26.8483**	**8.3503**	**35.1986**	**9.4934**	**7.7790**	**17.2724**	**0.0000**	**47,168.5637**	**47,168.5637**	**10.2245**	**0.0000**	**47,424.1763**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	lb/day										lb/day					
2021	69.8178	52.4795	190.4243	0.4781	15.2608	0.6444	15.9052	4.9955	0.6385	5.6340	0.0000	47,168.5637	47,168.5637	10.2245	0.0000	47,424.1763
2022	71.2914	32.5874	95.9849	0.2371	7.7301	0.2806	8.0106	2.0784	0.2762	2.3545	0.0000	23,451.7741	23,451.7741	4.6419	0.0000	23,567.8223
Maximum	**71.2914**	**52.4795**	**190.4243**	**0.4781**	**15.2608**	**0.6444**	**15.9052**	**4.9955**	**0.6385**	**5.6340**	**0.0000**	**47,168.5637**	**47,168.5637**	**10.2245**	**0.0000**	**47,424.1763**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**7.54**	**74.52**	**-14.37**	**0.00**	**33.51**	**92.67**	**49.32**	**38.87**	**92.25**	**65.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

<u>Unmitigated Operational</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.8708	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Energy	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Mobile	19.6708	139.2482	155.4288	0.6554	45.2773	0.3836	45.6609	12.1127	0.3572	12.4700		67,288.0046	67,288.0046	4.7549		67,406.8761
Total	**28.8249**	**141.8256**	**157.9277**	**0.6709**	**45.2773**	**0.5805**	**45.8577**	**12.1127**	**0.5541**	**12.6668**		**70,378.0247**	**70,378.0247**	**4.8160**	**0.0566**	**70,515.3016**

<u>Mitigated Operational</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
	lb/day										lb/day					
Area	6.9004	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Energy	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Mobile	19.6708	139.2482	155.4288	0.6554	45.2773	0.3836	45.6609	12.1127	0.3572	12.4700		67,288.0046	67,288.0046	4.7549		67,406.8761
Total	**26.8544**	**141.8256**	**157.9277**	**0.6709**	**45.2773**	**0.5805**	**45.8577**	**12.1127**	**0.5541**	**12.6668**		**70,378.0247**	**70,378.0247**	**4.8160**	**0.0566**	**70,515.3016**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2021	5/28/2021	5	65	1
2	Building Construction - Concrete	Building Construction	5/1/2021	11/3/2021	5	133	2
3	Building Construction - Steel Erection	Building Construction	11/4/2021	5/10/2022	5	134	3
4	Architectural Coating	Architectural Coating	12/20/2021	5/31/2022	5	117	6
5	Paving	Paving	5/1/2022	9/1/2022	5	89	5
6	Building Construction - Interior/Exterior	Building Construction	5/11/2022	11/14/2022	5	134	4

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 422.5

Acres of Paving: 27

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 442,500; Non-Residential Outdoor: 147,500; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	2	8.00	402	0.38
Grading	Off-Highway Trucks	2	8.00	350	0.38
Grading	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	6	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Concrete	Bore/Drill Rigs	2	8.00	221	0.50
Building Construction - Concrete	Forklifts	4	8.00	89	0.20
Building Construction - Concrete	Generator Sets	7	8.00	84	0.74
Building Construction - Concrete	Off-Highway Trucks	2	8.00	350	0.38
Building Construction - Concrete	Off-Highway Trucks	4	8.00	402	0.38
Building Construction - Concrete	Rollers	1	8.00	80	0.38
Building Construction - Concrete	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction - Steel Erection	Cranes	2	7.00	270	0.29
Building Construction - Steel Erection	Cranes	2	7.00	225	0.29
Building Construction - Steel Erection	Forklifts	3	8.00	89	0.20
Building Construction - Steel Erection	Generator Sets	8	8.00	84	0.74
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Paving	Rubber Tired Dozers	4	8.00	247	0.40
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Interior/Exterior	Cranes	2	7.00	225	0.29
Building Construction - Interior/Exterior	Forklifts	6	8.00	89	0.20
Building Construction - Interior/Exterior	Forklifts	10	8.00	49	0.20
Building Construction - Interior/Exterior	Off-Highway Trucks	2	8.00	402	0.38
Building Construction - Interior/Exterior	Off-Highway Trucks	2	8.00	350	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	17	43.00	0.00	3,750.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Concrete	24	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Steel Erection	15	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	126.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Interior/Exterior	22	628.00	245.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.9959	0.0000	18.9959	7.3736	0.0000	7.3736			0.0000			0.0000
Off-Road	11.1428	119.4157	73.6372	0.1755		4.9320	4.9320		4.5374	4.5374		16,997.1653	16,997.1653	5.4972		17,134.5960
Total	**11.1428**	**119.4157**	**73.6372**	**0.1755**	**18.9959**	**4.9320**	**23.9279**	**7.3736**	**4.5374**	**11.9110**		**16,997.1653**	**16,997.1653**	**5.4972**		**17,134.5960**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2955	12.6248	1.9235	0.0424	1.0092	0.0387	1.0479	0.2766	0.0371	0.3137		4,495.684 7	4,495.6847	0.2930		4,503.0106
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1606	0.0930	1.0063	3.1100e-003	0.3598	2.1900e-003	0.3620	0.0954	2.0100e-003	0.0974		309.6564	309.6564	7.3400e-003		309.8398
Total	**0.4562**	**12.7177**	**2.9298**	**0.0455**	**1.3689**	**0.0409**	**1.4099**	**0.3721**	**0.0391**	**0.4111**		**4,805.341 1**	**4,805.3411**	**0.3004**		**4,812.8504**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					7.4084	0.0000	7.4084	2.8757	0.0000	2.8757			0.0000			0.0000
Off-Road	2.1538	9.3332	82.4810	0.1755		0.2872	0.2872		0.2872	0.2872	0.0000	16,997.16 53	16,997.165 3	5.4972		17,134.596 0
Total	**2.1538**	**9.3332**	**82.4810**	**0.1755**	**7.4084**	**0.2872**	**7.6956**	**2.8757**	**0.2872**	**3.1629**	**0.0000**	**16,997.16 53**	**16,997.165 3**	**5.4972**		**17,134.596 0**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Hauling	0.2955	12.6248	1.9235	0.0424	1.0092	0.0387	1.0479	0.2766	0.0371	0.3137		4,495.6847	4,495.6847	0.2930		4,503.0106
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1606	0.0930	1.0063	3.1100e-003	0.3598	2.1900e-003	0.3620	0.0954	2.0100e-003	0.0974		309.6564	309.6564	7.3400e-003		309.8398
Total	**0.4562**	**12.7177**	**2.9298**	**0.0455**	**1.3689**	**0.0409**	**1.4099**	**0.3721**	**0.0391**	**0.4111**		**4,805.3411**	**4,805.3411**	**0.3004**		**4,812.8504**

3.3 Building Construction - Concrete - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.8590	71.7032	65.0972	0.1603		3.3095	3.3095		3.1386	3.1386		15,425.1051	15,425.1051	3.8008		15,520.1258
Total	**7.8590**	**71.7032**	**65.0972**	**0.1603**		**3.3095**	**3.3095**		**3.1386**	**3.1386**		**15,425.1051**	**15,425.1051**	**3.8008**		**15,520.1258**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5593	20.9984	4.4898	0.0514	1.2292	0.0360	1.2652	0.3541	0.0345	0.3885		5,418.5288	5,418.5288	0.5189		5,431.5017
Worker	2.3461	1.3577	14.6963	0.0454	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		4,522.4234	4,522.4234	0.1072		4,525.1023

Total	**2.9054**	**22.3561**	**19.1861**	**0.0968**	**6.4835**	**0.0680**	**6.5514**	**1.7477**	**0.0639**	**1.8116**		**9,940.9522**	**9,940.9522**	**0.6261**		**9,956.6040**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8629	8.0724	85.8273	0.1603		0.2484	0.2484		0.2484	0.2484	0.0000	15,425.1051	15,425.1051	3.8008		15,520.1258
Total	**1.8629**	**8.0724**	**85.8273**	**0.1603**		**0.2484**	**0.2484**		**0.2484**	**0.2484**	**0.0000**	**15,425.1051**	**15,425.1051**	**3.8008**		**15,520.1258**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5593	20.9984	4.4898	0.0514	1.2292	0.0360	1.2652	0.3541	0.0345	0.3885		5,418.5288	5,418.5288	0.5189		5,431.5017
Worker	2.3461	1.3577	14.6963	0.0454	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		4,522.4234	4,522.4234	0.1072		4,525.1023
Total	**2.9054**	**22.3561**	**19.1861**	**0.0968**	**6.4835**	**0.0680**	**6.5514**	**1.7477**	**0.0639**	**1.8116**		**9,940.9522**	**9,940.9522**	**0.6261**		**9,956.6040**

3.4 Building Construction - Steel Erection - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.6648	45.4522	42.2780	0.0788		2.2633	2.2633		2.1896	2.1896		7,522.5509	7,522.5509	1.0753		7,549.4327
Total	**4.6648**	**45.4522**	**42.2780**	**0.0788**		**2.2633**	**2.2633**		**2.1896**	**2.1896**		**7,522.5509**	**7,522.5509**	**1.0753**		**7,549.4327**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5593	20.9984	4.4898	0.0514	1.2292	0.0360	1.2652	0.3541	0.0345	0.3885		5,418.5288	5,418.5288	0.5189		5,431.5017
Worker	2.3461	1.3577	14.6963	0.0454	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		4,522.4234	4,522.4234	0.1072		4,525.1023
Total	**2.9054**	**22.3561**	**19.1861**	**0.0968**	**6.4835**	**0.0680**	**6.5514**	**1.7477**	**0.0639**	**1.8116**		**9,940.9522**	**9,940.9522**	**0.6261**		**9,956.6040**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.8486	3.6772	45.6830	0.0788		0.1131	0.1131		0.1131	0.1131	0.0000	7,522.5509	7,522.5509	1.0753		7,549.4327
Total	**0.8486**	**3.6772**	**45.6830**	**0.0788**		**0.1131**	**0.1131**		**0.1131**	**0.1131**	**0.0000**	**7,522.5509**	**7,522.5509**	**1.0753**		**7,549.4327**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5593	20.9984	4.4898	0.0514	1.2292	0.0360	1.2652	0.3541	0.0345	0.3885		5,418.5288	5,418.5288	0.5189		5,431.5017
Worker	2.3461	1.3577	14.6963	0.0454	5.2543	0.0319	5.2862	1.3937	0.0294	1.4231		4,522.4234	4,522.4234	0.1072		4,525.1023
Total	**2.9054**	**22.3561**	**19.1861**	**0.0968**	**6.4835**	**0.0680**	**6.5514**	**1.7477**	**0.0639**	**1.8116**		**9,940.9522**	**9,940.9522**	**0.6261**		**9,956.6040**

3.4 Building Construction - Steel Erection - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.2470	40.7162	41.4401	0.0788		1.9645	1.9645		1.9014	1.9014		7,522.0432	7,522.0432	1.0576		7,548.4824
Total	**4.2470**	**40.7162**	**41.4401**	**0.0788**		**1.9645**	**1.9645**		**1.9014**	**1.9014**		**7,522.0432**	**7,522.0432**	**1.0576**		**7,548.4824**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5221	19.8905	4.1888	0.0509	1.2291	0.0303	1.2594	0.3540	0.0290	0.3830		5,370.8245	5,370.8245	0.4914		5,383.1097
Worker	2.1976	1.2207	13.5231	0.0437	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,357.4975	4,357.4975	0.0963		4,359.9052
Total	**2.7197**	**21.1111**	**17.7119**	**0.0946**	**6.4834**	**0.0614**	**6.5448**	**1.7477**	**0.0576**	**1.8053**		**9,728.3221**	**9,728.3221**	**0.5877**		**9,743.0148**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	0.8486	3.6772	45.6830	0.0788		0.1131	0.1131		0.1131	0.1131	0.0000	7,522.0432	7,522.0432	1.0576		7,548.4824
Total	**0.8486**	**3.6772**	**45.6830**	**0.0788**		**0.1131**	**0.1131**		**0.1131**	**0.1131**	**0.0000**	**7,522.0432**	**7,522.0432**	**1.0576**		**7,548.4824**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5221	19.8905	4.1888	0.0509	1.2291	0.0303	1.2594	0.3540	0.0290	0.3830		5,370.8245	5,370.8245	0.4914		5,383.1097
Worker	2.1976	1.2207	13.5231	0.0437	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,357.4975	4,357.4975	0.0963		4,359.9052
Total	**2.7197**	**21.1111**	**17.7119**	**0.0946**	**6.4834**	**0.0614**	**6.5448**	**1.7477**	**0.0576**	**1.8053**		**9,728.3221**	**9,728.3221**	**0.5877**		**9,743.0148**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**65.7824**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4707	0.2724	2.9486	9.1000e-003	1.0542	6.4100e-003	1.0606	0.2796	5.9000e-003	0.2855		907.3652	907.3652	0.0215		907.9027
Total	**0.4707**	**0.2724**	**2.9486**	**9.1000e-003**	**1.0542**	**6.4100e-003**	**1.0606**	**0.2796**	**5.9000e-003**	**0.2855**		**907.3652**	**907.3652**	**0.0215**		**907.9027**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**65.5932**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4707	0.2724	2.9486	9.1000e-003	1.0542	6.4100e-003	1.0606	0.2796	5.9000e-003	0.2855		907.3652	907.3652	0.0215		907.9027
Total	**0.4707**	**0.2724**	**2.9486**	**9.1000e-003**	**1.0542**	**6.4100e-003**	**1.0606**	**0.2796**	**5.9000e-003**	**0.2855**		**907.3652**	**907.3652**	**0.0215**		**907.9027**

3.5 Architectural Coating - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**65.7680**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4409	0.2449	2.7132	8.7700e-003	1.0542	6.2400e-003	1.0605	0.2796	5.7400e-003	0.2854		874.2750	874.2750	0.0193		874.7580
Total	**0.4409**	**0.2449**	**2.7132**	**8.7700e-003**	**1.0542**	**6.2400e-003**	**1.0605**	**0.2796**	**5.7400e-003**	**0.2854**		**874.2750**	**874.2750**	**0.0193**		**874.7580**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	65.5635					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**65.5932**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4409	0.2449	2.7132	8.7700e-003	1.0542	6.2400e-003	1.0605	0.2796	5.7400e-003	0.2854		874.2750	874.2750	0.0193		874.7580
Total	**0.4409**	**0.2449**	**2.7132**	**8.7700e-003**	**1.0542**	**6.2400e-003**	**1.0605**	**0.2796**	**5.7400e-003**	**0.2854**		**874.2750**	**874.2750**	**0.0193**		**874.7580**

3.6 Paving - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	4.2173	44.0766	25.4085	0.0503		2.1484	2.1484		1.9765	1.9765		4,874.0849	4,874.0849	1.5764		4,913.4943

Paving	0.7948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.0121**	**44.0766**	**25.4085**	**0.0503**		**2.1484**	**2.1484**		**1.9765**	**1.9765**		**4,874.0849**	**4,874.0849**	**1.5764**		**4,913.4943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0805	0.0447	0.4953	1.6000e-003	0.1924	1.1400e-003	0.1936	0.0510	1.0500e-003	0.0521		159.5899	159.5899	3.5300e-003		159.6781
Total	**0.0805**	**0.0447**	**0.4953**	**1.6000e-003**	**0.1924**	**1.1400e-003**	**0.1936**	**0.0510**	**1.0500e-003**	**0.0521**		**159.5899**	**159.5899**	**3.5300e-003**		**159.6781**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6163	2.6706	27.5491	0.0503		0.0822	0.0822		0.0822	0.0822	0.0000	4,874.0849	4,874.0849	1.5764		4,913.4943
Paving	0.7948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4111**	**2.6706**	**27.5491**	**0.0503**		**0.0822**	**0.0822**		**0.0822**	**0.0822**	**0.0000**	**4,874.0849**	**4,874.0849**	**1.5764**		**4,913.4943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0805	0.0447	0.4953	1.6000e-003	0.1924	1.1400e-003	0.1936	0.0510	1.0500e-003	0.0521		159.5899	159.5899	3.5300e-003		159.6781
Total	**0.0805**	**0.0447**	**0.4953**	**1.6000e-003**	**0.1924**	**1.1400e-003**	**0.1936**	**0.0510**	**1.0500e-003**	**0.0521**		**159.5899**	**159.5899**	**3.5300e-003**		**159.6781**

3.7 Building Construction - Interior/Exterior - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7795	35.9314	31.8819	0.0778		1.7277	1.7277		1.5895	1.5895		7,534.0542	7,534.0542	2.4367		7,594.9709
Total	**4.7795**	**35.9314**	**31.8819**	**0.0778**		**1.7277**	**1.7277**		**1.5895**	**1.5895**		**7,534.0542**	**7,534.0542**	**2.4367**		**7,594.9709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5221	19.8905	4.1888	0.0509	1.2291	0.0303	1.2594	0.3540	0.0290	0.3830		5,370.8245	5,370.8245	0.4914		5,383.1097
Worker	2.1976	1.2207	13.5231	0.0437	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,357.4975	4,357.4975	0.0963		4,359.9052
Total	**2.7197**	**21.1111**	**17.7119**	**0.0946**	**6.4834**	**0.0614**	**6.5448**	**1.7477**	**0.0576**	**1.8053**		**9,728.3221**	**9,728.3221**	**0.5877**		**9,743.0148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0461	8.3873	40.6624	0.0778		0.1257	0.1257		0.1257	0.1257	0.0000	7,534.0542	7,534.0542	2.4367		7,594.9709
Total	**1.0461**	**8.3873**	**40.6624**	**0.0778**		**0.1257**	**0.1257**		**0.1257**	**0.1257**	**0.0000**	**7,534.0542**	**7,534.0542**	**2.4367**		**7,594.9709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5221	19.8905	4.1888	0.0509	1.2291	0.0303	1.2594	0.3540	0.0290	0.3830		5,370.8245	5,370.8245	0.4914		5,383.1097

Worker	2.1976	1.2207	13.5231	0.0437	5.2543	0.0311	5.2854	1.3937	0.0286	1.4223		4,357.4975	4,357.4975	0.0963		4,359.9052
Total	**2.7197**	**21.1111**	**17.7119**	**0.0946**	**6.4834**	**0.0614**	**6.5448**	**1.7477**	**0.0576**	**1.8053**		**9,728.3221**	**9,728.3221**	**0.5877**		**9,743.0148**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	19.6708	139.2482	155.4288	0.6554	45.2773	0.3836	45.6609	12.1127	0.3572	12.4700		67,288.0046	67,288.0046	4.7549		67,406.8761
Unmitigated	19.6708	139.2482	155.4288	0.6554	45.2773	0.3836	45.6609	12.1127	0.3572	12.4700		67,288.0046	67,288.0046	4.7549		67,406.8761

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	18,012.70	18,012.70	18012.70	21,233,230	21,233,230
Parking Lot	0.00	0.00	0.00		
Total	18,012.70	18,012.70	18,012.70	21,233,230	21,233,230

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	12.50	4.20	5.40	0.00	81.00	19.00	66	28	6
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Arena	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
NaturalGas Unmitigated	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Arena	26259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2832**	**2.5744**	**2.1625**	**0.0155**		**0.1957**	**0.1957**		**0.1957**	**0.1957**		**3,089.2990**	**3,089.2990**	**0.0592**	**0.0566**	**3,107.6571**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	26.259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2832**	**2.5744**	**2.1625**	**0.0155**		**0.1957**	**0.1957**		**0.1957**	**0.1957**		**3,089.2990**	**3,089.2990**	**0.0592**	**0.0566**	**3,107.6571**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	6.9004	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Unmitigated	8.8708	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.1016					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0312	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Total	**8.8708**	**3.0600e-003**	**0.3364**	**3.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**		**0.7211**	**0.7211**	**1.8900e-003**		**0.7684**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6032					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2660					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Landscaping	0.0312	3.0600e-003	0.3364	3.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		0.7211	0.7211	1.8900e-003		0.7684
Total	**6.9004**	**3.0600e-003**	**0.3364**	**3.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**		**0.7211**	**0.7211**	**1.8900e-003**		**0.7684**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

A.3
Operation Summer

Proposed NorthStar Specific Plan - Operation
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	230.00	1000sqft	16.00	230,000.00	0
Industrial Park	381.04	1000sqft	28.20	381,035.00	0
Arena	295.00	1000sqft	41.40	295,000.00	0
Golf Course	18.00	Hole	245.90	0.00	0
Hotel	350.00	Room	17.60	508,200.00	0
Apartments Low Rise	216.00	Dwelling Unit	9.95	216,000.00	618
Apartments Mid Rise	550.00	Dwelling Unit	33.20	550,000.00	1573
Single Family Housing	54.00	Dwelling Unit	7.30	97,200.00	154
Regional Shopping Center	400.00	1000sqft	36.20	400,000.00	0
Regional Shopping Center	100.00	1000sqft	20.00	100,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total of 455.75 acres.

Construction Phase - Operation only.

Vehicle Trips - Based on project traffic memo. Arena daily trips calcualted from annual VMT.

Woodstoves - No woodstoves.

Area Mitigation -

Water Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	500.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	183.60	0.00
tblFireplaces	NumberGas	467.50	0.00
tblFireplaces	NumberGas	45.90	0.00
tblFireplaces	NumberNoFireplace	21.60	0.00
tblFireplaces	NumberNoFireplace	55.00	0.00
tblFireplaces	NumberNoFireplace	5.40	0.00
tblFireplaces	NumberWood	10.80	0.00
tblFireplaces	NumberWood	27.50	0.00
tblFireplaces	NumberWood	2.70	0.00

tblLandUse	LandUseSquareFeet	381,040.00	381,035.00
tblLandUse	LotAcreage	5.28	16.00
tblLandUse	LotAcreage	8.75	28.20
tblLandUse	LotAcreage	94.82	41.40
tblLandUse	LotAcreage	125.66	245.90
tblLandUse	LotAcreage	11.67	17.60
tblLandUse	LotAcreage	13.50	9.95
tblLandUse	LotAcreage	14.47	33.20
tblLandUse	LotAcreage	17.53	7.30
tblLandUse	LotAcreage	2.30	20.00
tblLandUse	LotAcreage	9.18	36.20
tblVehicleTrips	ST_TR	7.16	7.34
tblVehicleTrips	ST_TR	6.39	4.91
tblVehicleTrips	ST_TR	10.71	33.35
tblVehicleTrips	ST_TR	2.46	2.21
tblVehicleTrips	ST_TR	40.63	19.89
tblVehicleTrips	ST_TR	2.49	2.54
tblVehicleTrips	ST_TR	49.97	46.12
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	6.07	6.01
tblVehicleTrips	SU_TR	5.86	4.09
tblVehicleTrips	SU_TR	10.71	33.35
tblVehicleTrips	SU_TR	1.05	0.70
tblVehicleTrips	SU_TR	39.53	18.89
tblVehicleTrips	SU_TR	0.73	1.24
tblVehicleTrips	SU_TR	25.24	21.10
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	6.59	8.63
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	10.71	33.35

tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	35.74	30.38
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	42.70	37.75
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	10.80	0.00
tblWoodstoves	NumberCatalytic	27.50	0.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	10.80	0.00
tblWoodstoves	NumberNoncatalytic	27.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	1.5523	0.0000	0.0000	1.4420	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5523**	**0.0000**	**0.0000**	**1.4420**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	1.5523	0.0000	0.0000	1.4420	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5523**	**0.0000**	**0.0000**	**1.4420**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Energy	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757

Mobile	64.9495	261.3201	774.7389	2.8422	234.1185	2.1027	236.2212	62.6514	1.9553	64.6067		289,625.3024	289,625.3024	14.1796		289,979.7914
Total	**131.8131**	**277.0563**	**853.7715**	**2.9368**	**234.1185**	**3.6305**	**237.7490**	**62.6514**	**3.4831**	**66.1345**	**0.0000**	**307,947.3268**	**307,947.3268**	**14.6466**	**0.3337**	**308,412.9221**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Energy	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757
Mobile	56.3143	218.6767	546.1730	1.8914	149.6916	1.4346	151.1261	40.0583	1.3334	41.3917		192,946.4786	192,946.4786	9.9502		193,195.2331
Total	**123.1779**	**234.4129**	**625.2056**	**1.9860**	**149.6916**	**2.9624**	**152.6539**	**40.0583**	**2.8613**	**42.9196**	**0.0000**	**211,268.5030**	**211,268.5030**	**10.4172**	**0.3337**	**211,628.3638**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**6.55**	**15.39**	**26.77**	**32.38**	**36.06**	**18.40**	**35.79**	**36.06**	**17.85**	**35.10**	**0.00**	**31.39**	**31.39**	**28.88**	**0.00**	**31.38**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/10/2021	2/9/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	56.3143	218.6767	546.1730	1.8914	149.6916	1.4346	151.1261	40.0583	1.3334	41.3917		192,946.4786	192,946.4786	9.9502		193,195.2331
Unmitigated	64.9495	261.3201	774.7389	2.8422	234.1185	2.1027	236.2212	62.6514	1.9553	64.6067		289,625.3024	289,625.3024	14.1796		289,979.7914

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	1,864.08	1,585.44	1298.16	5,957,560	3,809,167

Apartments Mid Rise	2,992.00	2,700.50	2249.50	9,719,356	6,214,398
Arena	9,836.81	9,836.81	9836.81	21,232,770	13,575,887
General Office Building	2,240.20	508.30	161.00	5,462,815	3,492,835
Golf Course	546.84	358.02	340.02	1,194,180	763,539
Hotel	2,926.00	2,866.50	2082.50	6,674,120	4,267,324
Industrial Park	1,284.10	967.84	472.49	4,465,961	2,855,463
Regional Shopping Center	15,100.00	18,448.00	8440.00	31,635,610	20,227,293
Regional Shopping Center	3,775.00	4,612.00	2110.00	7,908,902	5,056,823
Single Family Housing	509.76	515.16	461.70	1,721,102	1,100,445
Total	41,074.79	42,398.57	27,452.18	95,972,378	61,363,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Arena	16.60	8.40	6.90	0.00	81.00	19.00	66	28	6
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Apartments Mid Rise	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Arena	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
General Office Building	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Golf Course	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Hotel	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Industrial Park	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Regional Shopping Center	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

Single Family Housing	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757
NaturalGas Unmitigated	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	9216.69	0.0994	0.8494	0.3614	5.4200e-003		0.0687	0.0687		0.0687	0.0687		1,084.3165	1,084.3165	0.0208	0.0199	1,090.7601
Apartments Mid Rise	22292.4	0.2404	2.0544	0.8742	0.0131		0.1661	0.1661		0.1661	0.1661		2,622.6411	2,622.6411	0.0503	0.0481	2,638.2261
Arena	26259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571

General Office Building	2186.58	0.0236	0.2144	0.1801	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.2442	257.2442	4.9300e-003	4.7200e-003	258.7728
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	83553.6	0.9011	8.1915	6.8809	0.0492		0.6226	0.6226		0.6226	0.6226		9,829.8411	9,829.8411	0.1884	0.1802	9,888.2549
Industrial Park	3622.44	0.0391	0.3551	0.2983	2.1300e-003		0.0270	0.0270		0.0270	0.0270		426.1697	426.1697	8.1700e-003	7.8100e-003	428.7022
Regional Shopping Center	2432.88	0.0262	0.2385	0.2004	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.2208	286.2208	5.4900e-003	5.2500e-003	287.9217
Regional Shopping Center	608.219	6.5600e-003	0.0596	0.0501	3.6000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003		71.5552	71.5552	1.3700e-003	1.3100e-003	71.9804
Single Family Housing	4526.55	0.0488	0.4172	0.1775	2.6600e-003		0.0337	0.0337		0.0337	0.0337		532.5357	532.5357	0.0102	9.7600e-003	535.7003
Total		**1.6683**	**14.9545**	**11.1854**	**0.0910**		**1.1527**	**1.1527**		**1.1527**	**1.1527**		**18,199.8232**	**18,199.8232**	**0.3488**	**0.3337**	**18,307.9757**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	9.21669	0.0994	0.8494	0.3614	5.4200e-003		0.0687	0.0687		0.0687	0.0687		1,084.3165	1,084.3165	0.0208	0.0199	1,090.7601
Apartments Mid Rise	22.2924	0.2404	2.0544	0.8742	0.0131		0.1661	0.1661		0.1661	0.1661		2,622.6411	2,622.6411	0.0503	0.0481	2,638.2261
Arena	26.259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
General Office Building	2.18658	0.0236	0.2144	0.1801	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.2442	257.2442	4.9300e-003	4.7200e-003	258.7728
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	83.5536	0.9011	8.1915	6.8809	0.0492		0.6226	0.6226		0.6226	0.6226		9,829.8411	9,829.8411	0.1884	0.1802	9,888.2549
Industrial Park	3.62244	0.0391	0.3551	0.2983	2.1300e-003		0.0270	0.0270		0.0270	0.0270		426.1697	426.1697	8.1700e-003	7.8100e-003	428.7022
Regional Shopping Center	0.608219	6.5600e-003	0.0596	0.0501	3.6000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003		71.5552	71.5552	1.3700e-003	1.3100e-003	71.9804

Regional Shopping Center	2.43288	0.0262	0.2385	0.2004	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.2208	286.2208	5.4900e-003	5.2500e-003	287.9217
Single Family Housing	4.52655	0.0488	0.4172	0.1775	2.6600e-003		0.0337	0.0337		0.0337	0.0337		532.5357	532.5357	0.0102	9.7600e-003	535.7003
Total		**1.6683**	**14.9545**	**11.1854**	**0.0910**		**1.1527**	**1.1527**		**1.1527**	**1.1527**		**18,199.8232**	**18,199.8232**	**0.3488**	**0.3337**	**18,307.9757**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Unmitigated	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	56.5928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0553	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752		122.2011	122.2011	0.1182		125.1550
Total	**65.1953**	**0.7817**	**67.8472**	**3.5900e-003**		**0.3752**	**0.3752**		**0.3752**	**0.3752**	**0.0000**	**122.2011**	**122.2011**	**0.1182**	**0.0000**	**125.1550**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	56.5928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0553	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752		122.2011	122.2011	0.1182		125.1550
Total	**65.1953**	**0.7817**	**67.8472**	**3.5900e-003**		**0.3752**	**0.3752**		**0.3752**	**0.3752**	**0.0000**	**122.2011**	**122.2011**	**0.1182**	**0.0000**	**125.1550**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

A.4
Operation Winter

Proposed NorthStar Specific Plan - Operation

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	230.00	1000sqft	16.00	230,000.00	0
Industrial Park	381.04	1000sqft	28.20	381,035.00	0
Arena	295.00	1000sqft	41.40	295,000.00	0
Golf Course	18.00	Hole	245.90	0.00	0
Hotel	350.00	Room	17.60	508,200.00	0
Apartments Low Rise	216.00	Dwelling Unit	9.95	216,000.00	618
Apartments Mid Rise	550.00	Dwelling Unit	33.20	550,000.00	1573
Single Family Housing	54.00	Dwelling Unit	7.30	97,200.00	154
Regional Shopping Center	400.00	1000sqft	36.20	400,000.00	0
Regional Shopping Center	100.00	1000sqft	20.00	100,000.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2023

Utility Company Imperial Irrigation District

CO2 Intensity (lb/MWhr) 1270.9 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total of 455.75 acres.

Construction Phase - Operation only.

Vehicle Trips - Based on project traffic memo. Arena daily trips calcualted from annual VMT.

Woodstoves - No woodstoves.

Area Mitigation -

Water Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	500.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	183.60	0.00
tblFireplaces	NumberGas	467.50	0.00
tblFireplaces	NumberGas	45.90	0.00
tblFireplaces	NumberNoFireplace	21.60	0.00
tblFireplaces	NumberNoFireplace	55.00	0.00
tblFireplaces	NumberNoFireplace	5.40	0.00
tblFireplaces	NumberWood	10.80	0.00
tblFireplaces	NumberWood	27.50	0.00
tblFireplaces	NumberWood	2.70	0.00

tblLandUse	LandUseSquareFeet	381,040.00	381,035.00
tblLandUse	LotAcreage	5.28	16.00
tblLandUse	LotAcreage	8.75	28.20
tblLandUse	LotAcreage	94.82	41.40
tblLandUse	LotAcreage	125.66	245.90
tblLandUse	LotAcreage	11.67	17.60
tblLandUse	LotAcreage	13.50	9.95
tblLandUse	LotAcreage	14.47	33.20
tblLandUse	LotAcreage	17.53	7.30
tblLandUse	LotAcreage	2.30	20.00
tblLandUse	LotAcreage	9.18	36.20
tblVehicleTrips	ST_TR	7.16	7.34
tblVehicleTrips	ST_TR	6.39	4.91
tblVehicleTrips	ST_TR	10.71	33.35
tblVehicleTrips	ST_TR	2.46	2.21
tblVehicleTrips	ST_TR	40.63	19.89
tblVehicleTrips	ST_TR	2.49	2.54
tblVehicleTrips	ST_TR	49.97	46.12
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	6.07	6.01
tblVehicleTrips	SU_TR	5.86	4.09
tblVehicleTrips	SU_TR	10.71	33.35
tblVehicleTrips	SU_TR	1.05	0.70
tblVehicleTrips	SU_TR	39.53	18.89
tblVehicleTrips	SU_TR	0.73	1.24
tblVehicleTrips	SU_TR	25.24	21.10
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	6.59	8.63
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	10.71	33.35

tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	35.74	30.38
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	42.70	37.75
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	10.80	0.00
tblWoodstoves	NumberCatalytic	27.50	0.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	10.80	0.00
tblWoodstoves	NumberNoncatalytic	27.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	1.5523	0.0000	0.0000	1.4420	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5523**	**0.0000**	**0.0000**	**1.4420**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	1.5523	0.0000	0.0000	1.4420	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5523**	**0.0000**	**0.0000**	**1.4420**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Energy	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757

Mobile	62.8445	266.2980	742.7027	2.7021	234.1185	2.1147	236.2332	62.6514	1.9667	64.6182		275,483.2880	275,483.2880	14.2060		275,838.4376
Total	**129.7081**	**282.0342**	**821.7353**	**2.7967**	**234.1185**	**3.6425**	**237.7610**	**62.6514**	**3.4946**	**66.1460**	**0.0000**	**293,805.3123**	**293,805.3123**	**14.6730**	**0.3337**	**294,271.5683**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Energy	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757
Mobile	54.4217	220.9483	535.6736	1.7953	149.6916	1.4466	151.1381	40.0583	1.3449	41.4032		183,174.4508	183,174.4508	10.0813		183,426.4826
Total	**121.2853**	**236.6845**	**614.7062**	**1.8899**	**149.6916**	**2.9744**	**152.6659**	**40.0583**	**2.8727**	**42.9310**	**0.0000**	**201,496.4751**	**201,496.4751**	**10.5483**	**0.3337**	**201,859.6133**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**6.49**	**16.08**	**25.19**	**32.43**	**36.06**	**18.34**	**35.79**	**36.06**	**17.79**	**35.10**	**0.00**	**31.42**	**31.42**	**28.11**	**0.00**	**31.40**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/10/2021	2/9/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	54.4217	220.9483	535.6736	1.7953	149.6916	1.4466	151.1381	40.0583	1.3449	41.4032		183,174.4508	183,174.4508	10.0813		183,426.4826
Unmitigated	62.8445	266.2980	742.7027	2.7021	234.1185	2.1147	236.2332	62.6514	1.9667	64.6182		275,483.2880	275,483.2880	14.2060		275,838.4376

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	1,864.08	1,585.44	1298.16	5,957,560	3,809,167

Apartments Mid Rise	2,992.00	2,700.50	2249.50	9,719,356	6,214,398
Arena	9,836.81	9,836.81	9836.81	21,232,770	13,575,887
General Office Building	2,240.20	508.30	161.00	5,462,815	3,492,835
Golf Course	546.84	358.02	340.02	1,194,180	763,539
Hotel	2,926.00	2,866.50	2082.50	6,674,120	4,267,324
Industrial Park	1,284.10	967.84	472.49	4,465,961	2,855,463
Regional Shopping Center	15,100.00	18,448.00	8440.00	31,635,610	20,227,293
Regional Shopping Center	3,775.00	4,612.00	2110.00	7,908,902	5,056,823
Single Family Housing	509.76	515.16	461.70	1,721,102	1,100,445
Total	41,074.79	42,398.57	27,452.18	95,972,378	61,363,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Arena	16.60	8.40	6.90	0.00	81.00	19.00	66	28	6
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Apartments Mid Rise	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Arena	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
General Office Building	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Golf Course	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Hotel	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Industrial Park	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862
Regional Shopping Center	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

Single Family Housing	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757
NaturalGas Unmitigated	1.6683	14.9545	11.1854	0.0910		1.1527	1.1527		1.1527	1.1527		18,199.8232	18,199.8232	0.3488	0.3337	18,307.9757

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	9216.69	0.0994	0.8494	0.3614	5.4200e-003		0.0687	0.0687		0.0687	0.0687		1,084.3165	1,084.3165	0.0208	0.0199	1,090.7601
Apartments Mid Rise	22292.4	0.2404	2.0544	0.8742	0.0131		0.1661	0.1661		0.1661	0.1661		2,622.6411	2,622.6411	0.0503	0.0481	2,638.2261
Arena	26259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571

General Office Building	2186.58	0.0236	0.2144	0.1801	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.2442	257.2442	4.9300e-003	4.7200e-003	258.7728
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	83553.6	0.9011	8.1915	6.8809	0.0492		0.6226	0.6226		0.6226	0.6226		9,829.8411	9,829.8411	0.1884	0.1802	9,888.2549
Industrial Park	3622.44	0.0391	0.3551	0.2983	2.1300e-003		0.0270	0.0270		0.0270	0.0270		426.1697	426.1697	8.1700e-003	7.8100e-003	428.7022
Regional Shopping Center	2432.88	0.0262	0.2385	0.2004	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.2208	286.2208	5.4900e-003	5.2500e-003	287.9217
Regional Shopping Center	608.219	6.5600e-003	0.0596	0.0501	3.6000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003		71.5552	71.5552	1.3700e-003	1.3100e-003	71.9804
Single Family Housing	4526.55	0.0488	0.4172	0.1775	2.6600e-003		0.0337	0.0337		0.0337	0.0337		532.5357	532.5357	0.0102	9.7600e-003	535.7003
Total		**1.6683**	**14.9545**	**11.1854**	**0.0910**		**1.1527**	**1.1527**		**1.1527**	**1.1527**		**18,199.8232**	**18,199.8232**	**0.3488**	**0.3337**	**18,307.9757**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	9.21669	0.0994	0.8494	0.3614	5.4200e-003		0.0687	0.0687		0.0687	0.0687		1,084.3165	1,084.3165	0.0208	0.0199	1,090.7601
Apartments Mid Rise	22.2924	0.2404	2.0544	0.8742	0.0131		0.1661	0.1661		0.1661	0.1661		2,622.6411	2,622.6411	0.0503	0.0481	2,638.2261
Arena	26.259	0.2832	2.5744	2.1625	0.0155		0.1957	0.1957		0.1957	0.1957		3,089.2990	3,089.2990	0.0592	0.0566	3,107.6571
General Office Building	2.18658	0.0236	0.2144	0.1801	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.2442	257.2442	4.9300e-003	4.7200e-003	258.7728
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	83.5536	0.9011	8.1915	6.8809	0.0492		0.6226	0.6226		0.6226	0.6226		9,829.8411	9,829.8411	0.1884	0.1802	9,888.2549
Industrial Park	3.62244	0.0391	0.3551	0.2983	2.1300e-003		0.0270	0.0270		0.0270	0.0270		426.1697	426.1697	8.1700e-003	7.8100e-003	428.7022
Regional Shopping Center	0.608219	6.5600e-003	0.0596	0.0501	3.6000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003		71.5552	71.5552	1.3700e-003	1.3100e-003	71.9804

Regional Shopping Center	2.43288	0.0262	0.2385	0.2004	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.2208	286.2208	5.4900e-003	5.2500e-003	287.9217
Single Family Housing	4.52655	0.0488	0.4172	0.1775	2.6600e-003		0.0337	0.0337		0.0337	0.0337		532.5357	532.5357	0.0102	9.7600e-003	535.7003
Total		**1.6683**	**14.9545**	**11.1854**	**0.0910**		**1.1527**	**1.1527**		**1.1527**	**1.1527**		**18,199.8232**	**18,199.8232**	**0.3488**	**0.3337**	**18,307.9757**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550
Unmitigated	65.1953	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752	0.0000	122.2011	122.2011	0.1182	0.0000	125.1550

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	56.5928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0553	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752		122.2011	122.2011	0.1182		125.1550
Total	**65.1953**	**0.7817**	**67.8472**	**3.5900e-003**		**0.3752**	**0.3752**		**0.3752**	**0.3752**	**0.0000**	**122.2011**	**122.2011**	**0.1182**	**0.0000**	**125.1550**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	56.5928					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0553	0.7817	67.8472	3.5900e-003		0.3752	0.3752		0.3752	0.3752		122.2011	122.2011	0.1182		125.1550
Total	**65.1953**	**0.7817**	**67.8472**	**3.5900e-003**		**0.3752**	**0.3752**		**0.3752**	**0.3752**	**0.0000**	**122.2011**	**122.2011**	**0.1182**	**0.0000**	**125.1550**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B1

Geotechnical Exploration Report

GEOTECHNICAL EXPLORATION REPORT
PROPOSED ICE HOCKEY ARENA
VARNER ROAD BETWEEN COOK STREET AND WASHINGTON STREET
COACHELLA VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Prepared for

CAA ICON

5075 S. Syracuse Street, Suite 700
Denver, Colorado 80237

Project No. 12915.001

October 30, 2020

(Revised November 10, 2020)

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

October 30, 2020

(Revised November 10, 2020)

Project No. 12915.001

CAA ICON
5075 South Syracuse St., Suite 700
Denver, Colorado 80237

Attention: Mr. Charlie Thornton

Subject: Geotechnical Exploration Report
Proposed Ice Hockey Arena
Varner Road between Cook Street and Washington Street
Coachella Valley, Riverside County, California

In accordance with your request and authorization, we are pleased to provide the preliminary results of our geotechnical exploration for the *Riverside Ice Hockey Arena Project*. The purpose of this study is to evaluate the subsurface geotechnical conditions at the site and provide geotechnical recommendations for foundation design and earthwork construction of the project as currently planned.

Based on the results of our exploration and analysis, it is our opinion that the site is suitable for the intended use from a geotechnical perspective provided our recommendations included herein are properly incorporated during design and construction. However, these recommendations should be further evaluated once final grading and foundations plans become available.

If you have any questions regarding this report, please call us at your convenience. We appreciate this opportunity to be of service on this project.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

CERTIFIED ENGINEERING GEOLOGIST ★ JOE A. ROE No. 2456 ★ STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER CARL C. KIM No. 2620 GEOTECHNICAL ★ STATE OF CALIFORNIA ★

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Distribution: (1) Addressee

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1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of our geotechnical exploration was to evaluate the subsurface geotechnical conditions at the site and provide geotechnical recommendations to aid in the design and construction of the *Riverside County Ice Hockey Arena Project (Arena)*. Our scope of services for this exploration included the following:

- *Pre Field Activities:* Review of our in-house geotechnical reports and relevant published data for this area (see *References* at the end of this report). Applicable data (exploration logs, laboratory test results) from prior explorations at this site was used in preparation of this report.

- Geologic reconnaissance and visual observations of surface conditions at the site. Exploration locations were marked in the field for utility clearance. Underground Service Alert (USA) was notified to mark known utilities in the project vicinity.

- *Field Exploration:* Excavation, sampling and geologic logging of a total of six (6) hollow-stem auger borings (2020-LB-1 through 2020-LB-6) complemented with eight (8) cone penetrometer test (CPT) soundings (2020-CPT-1 through 2020-CPT-8). Logs of explorations from this and previous studies are presented in Appendix A, *Field Exploration Logs*. Exploration locations are presented on Plate 1, *Exploration Location Map.* Subsurface interpretations are presented on Plate 2, *Geotechnical Cross Sections AA' and BB'.*

- *Infiltration Testing:* An additional six (6) hollow stem auger borings were advanced and converted to temporary percolation wells upon completion of logging and sampling (2020-P-1 through 2020-P-6). These borings were located by the design team in areas planned for infiltration BMPs drilled and sampled to target depths of approximately 15 to 50 feet below existing ground surface (bgs). Tests were conducted within the borings at depth intervals from 5 to 15 feet and 30 to 50 feet as requested by the design team.

- *Geotechnical Laboratory Testing:* Representative soil samples obtained from the subsurface exploration program were selected for testing. A brief description of laboratory testing procedures and laboratory test results are presented in Appendix B, *Geotechnical Laboratory Testing*. Test data from previous explorations is also presented in Appendix B.

- Geotechnical engineering analyses performed by a California registered Geotechnical Engineer (GE) including foundation and seismic design parameters based on the 2019 California Building Code (CBC). A California Certified Engineering Geologist (CEG) performed engineering geology review of site geologic hazards.

- Preparation of this report, which presents the results of our exploration and provides preliminary geotechnical recommendations for the proposed Ice Hockey Arena project.

1.2 Site Location and Description

The subject property is located approximately 8 miles southeast of Palm Springs between Thousand Palms and Indio abutting the northeast side of Interstate 10. The site location (latitude 33.7798°, longitude -116.3410°) and immediate vicinity are shown on Figure 1, *Site Location Map.*

Review of the USGS *Thousand Palms 7.5-Minute Quadrangle* indicates the project area is relatively flat with a slightly terraced to nearly level surface at approximately Elevation (El.) +145 to +155 feet mean sea level (msl). Grading of the site certified by Earth Systems Southwest (ESS, 2017) has resulted in engineered fill placed on the western region dropping slightly in elevation to the southeast. Resultant elevations of graded areas are expected to vary slightly from current topography maps reviewed in support of the Arena project.

The Arena project site is located on the nearly level floor of the Coachella Valley, west of Indio Hills and the Little San Bernardino Mountains. Site features are sparse aside from slightly elevated engineered fill pads (ESS, 2017), crushed asphalt surfaced access roads, a stockpile of material partially covered by visqueen and v-shaped earthen drainage ditch and concrete sidewalks fronting Varner Road.

A screen fence limits access to the northeast-southwest oriented road that borders the northern limit of the site. Two above-ground temporary water tanks are centrally located on the property bordering a masonry block wall that houses pumping equipment for a groundwater well with reported depth to groundwater at approximately 247 feet bgs. The well and pump house location is shown on Plate 1.

Although not visible in aerial reconnaissance, based on past agricultural site use and review of a prior geotechnical report (ESS, 2004), remnants of irrigation that once supported alfalfa and oats and abandoned wells may exist throughout the site. The locations of these reported features, if onsite, are unknown.

Manmade fill (ESS, 2017) and soil piles are present on the site near the water towers and in the southern portion of the planned parking lot.

1.3 Proposed Improvements

The proposed Riverside County Arena is an 11,500-seat, multi-purpose arena. The arena has a below-grade Event Level with an ice slab for competitive hockey and other ice events and a depressed exterior loading yard for access. The Main Concourse is a combination of on grade and elevated structure with a long span roof. There is an attached practice facility with a long span roof. The practice facility also has an ice slab on grade. There are seating units and precast seating areas at the Event Level and on the planned slopes rising to the Main Concourse.

1.4 Previous Studies

Earth Systems Southwest, 2004: ESS performed geotechnical exploration at the site that addressed then proposed World Trade Center Resort and University project in accordance with the 2001 California Building Code (CBC). Six (6) exploratory borings were drilled to 51½ feet bgs using 8-inch diameter hollow stem auger borings. Fifty (50) Cone Penetrometer Test (CPT) soundings were also advanced to approximate depths of 5 to 80 feet bgs. Laboratory testing was performed on samples selected from the hollow stem auger drilling to determine engineering characteristics of site soils. Logs and explorations applicable to the Arena site are included herein in Appendix A, *Field Exploration Logs.* Locations of exploration pertinent to the Arena project are shown on Plate 1.

Earth Systems Southwest, 2008: ESS provided a response to County of Riverside review comments. The main comments were with respect to groundwater depths. Groundwater (GW) levels in 2008 were estimated at approximately 100 feet bgs or El. +70 feet msl. Increased irrigation from the neighboring golf course was considered in their response accounting for laterally discontinuous clay or silt stratigraphy below the site deemed unlikely to result in broadly distributed perched groundwater conditions. Based on results of our exploration, we agree with this conclusion. Static groundwater levels were estimated for conservatism to be at 90 feet bgs. *The current groundwater level verbally reported to Leighton on October 6, 2020 by the well owner/operator is at approximately 247 feet bgs.*

Faulting: Aerial photographs from 1974 to 1995 were reviewed to support the conclusion of low potential for surface rupture to affect the site. Several moderate to strong lineaments were observed in close proximity to the site (<1 mile) and were interpreted as reflective dune migration (blowing sand). Strong fault related lineaments were observed in the Indio Hills along the San Andreas fault zone located several miles north of the site.

Subgrade Acceptance Criteria: Consolidation tests on samples in the upper 10 to 20 feet indicated in-place densities greater than 102 pounds per cubic foot (pcf) exhibited minimal hydrocollapse. Therefore, a target density of 102 pcf or greater was established.

Earth Systems Southwest, 2017: ESS intermittently observed and tested fill materials during placement occurring at the site over a period of six years in the time period February 27, 2011 through March 1, 2017. A total of 129 density tests were recorded indicating a minimum of 90% compaction or greater was achieved at the tested locations. Elevation control was provided by field staking. Sixteen (16) samples of fill material were geotechnically characterized (Proctor) in accordance with ASTM 1557 criteria. Maximum densities ranged from 103.6 pcf to 132.1 pcf at optimum moisture contents ranging from 6.7% to 12.8%. Geotechnical investigations were recommended to be performed to provide specific recommendations for future projects. The approximate footprint of engineered fill is shown on Plate 1. Fill depths are expected to range from about El. +153 msl to current grade. *In current Leighton borings, engineered fill within the Arena footprint ranged from 6 to 8 feet* (*Appendix A*).

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

Borings and CPT Soundings: On October 6 and 7, 2020, eight (8) CPT soundings (2020-CPT-1 through 2020-CPT-8) were advanced to depths of 75 to 90 feet bgs. On October 9, 12 and 13, 2020 six (6) hollow-stem auger borings (2020-LB-1 through 2020-LB-6) were drilled within the Arena footprint to depths ranging from 16.5 to 91.5 feet bgs. The explorations were performed to assess the subsurface materials expected to be encountered during grading and for use in engineering design.

The approximate locations of the explorations are shown on Plate 1. During hollow stem auger drilling, bulk samples and driven ring samples were collected from the borings for further laboratory testing and evaluation. The driven samples were obtained using a 3-inch outside diameter modified California drive sampler (2⅜-inch inside diameter) driven 18 inches in general accordance with ASTM Test Method D 3550. Standard penetration tests (SPT) were also performed using a 2-inch outside diameter (1⅜-inch inside diameter) sampler driven 18 inches in general accordance with ASTM Test Method D 1586. The number of blows to drive the samplers were recorded on the boring logs for each 6-inch increment (unless encountering refusal or >50 blows per 6 inches). After logging and sampling, the borings were backfilled with the soil cuttings generated during drilling.

Infiltration Testing: Six (6) infiltration borings (2020-P-1 thru 2020-P-6) were advanced to depths ranging from 15 to 50 feet bgs for purposes of installing infiltration test wells. Locations of the infiltration test wells were selected by the design team in areas planned for infiltration trenches or drywell infiltration. Bulk and ring samples were collected at each boring location. Logging and sampling of the borings was conducted either by or under the observation of a Certified Engineering Geologist from our firm. The soils encountered in the infiltration test borings (Plate 1) generally consisted of silty sand (SM) to sand with silt (SP-SM) with a range of 7 to 24 percent fines and 76 to 90 percent sand particles. The results of sieve analysis and unit descriptions are provided on the boring logs included in Appendix A.

After logging and sampling the percolation test wells were constructed with 2-inch diameter 0.020-inch slotted PVC pipe within the zones to be tested (Plate 1). No. 3 Monterey sand (filter pack material) was placed in the annulus surrounding the slotted section of pipe extending from the bottom of the boring to at least 1 foot above the zone to be tested. The field percolation testing was performed in general accordance with Riverside County guidelines (Appendix A -*Riverside County Low Impact Development BMP Design Handbook, 2011*).

A boring percolation test is useful for field measurements of the infiltration rate of soils, and is suited for testing when the design depth of the infiltration device is deeper than current existing grades, especially in areas where it is difficult to dig test pits, or where the depths of these test pits would be considerably deep. At the subject site, testing consisted of advancing the borings to general depths anticipated for the invert of typical infiltration devices of approximately 15 to 50 feet bgs.

The tests were performed using the constant-head method, which records the approximate volume of water delivered to the test zone while maintaining a relatively constant height of water in the well over the testing period. Since the subsurface materials are generally favorable for percolation (sandy soils), a water source was used to deliver water to each well at a relatively constant rate while recording the water height in the well. The measured infiltration rate for each percolation test was calculated by dividing the total volume of water infiltrated by the total duration of the test and dividing by the percolation surface area. Detailed results of the field testing and calculated infiltration rate for the test wells are presented in Appendix A. The test results are summarized below:

Measured (Unfactored) Infiltration Rate

Boring ID	Boring Depth (ft)	Test Depth (ft)	Soil Type USCS	Infiltration Rate (in/hr)
2020-P-1	15	5-15	SP-SM	35.3
2020-P-2	50	30-50	SM	48.7
2020-P-3	15	5-15	SM to SP-SM	32.2
2020-P-4	15	5-15	SM	63.7
2020-P-5	15	5-15	SP-SM	11.6
2020-P-6	15	5-15	SP-SM	20.0

The results of the percolation testing indicate favorable rates of infiltration at the specific locations and depths tested. The calculated infiltration rates are the result of small-scale test performed at specific locations and depths. The actual infiltration rate over the area of the proposed infiltration device could vary from the test locations. Therefore, care must be used in the selection of infiltration rate for use in design and the potential for variances in soil conditions (fines content) that could significantly affect long term field performance. The infiltration rate will decline over time between maintenance cycles as the BMP surface becomes occluded and particulates accumulate in the infiltrative layer of testing suggest some lateral variability in both infiltration rates and fines content. Infiltration is considered feasible at this site.

2.2 Laboratory Testing

Laboratory tests were performed on representative bulk and drive samples to provide a basis for development of remedial earthwork and geotechnical design parameters. Selected samples were tested for the following parameters: in-situ moisture content and dry density, maximum dry density (Proctor), collapse potential, R-Value, gradation, Expansion Index, direct shear, and soluble sulfate content, pH, resistivity and chloride content. The results of current and past laboratory testing (ESS, 2004) are presented in Appendix B, *Geotechnical Laboratory Testing.*

2.3 Shear Wave Velocity

Shear wave velocities were profiled at 10-foot intervals to a depth of 90 feet bgs in 2020 CPT-1 and 2020 CPT-8 (Plate 1) to estimate average S-wave velocities of the upper 100 feet (Vs_{100}) and 30 meters (Vs_{30}). The average sear wave velocity recorded onsite is approximately 947 feet per second (ft/sec). The shear wave velocity report is included in Appendix A. Based on collected velocities and in accordance with the 2019 California Building Code, the soils at this site classified as Seismic Site Class D.

3.0 GEOTECHNICAL AND GEOLOGIC FINDINGS

3.1 Regional Geology

Regionally, the Arena site is located at the boundary of a prominent natural geomorphic province in southwestern California known as the Peninsular Ranges. The Peninsular Ranges province extends approximately 900 miles southward from the Transverse Ranges to the tip of Baja California (Norris, 1990). The province is characterized by elongate, northwest-trending mountain ridges separated by intervening, sediment-floored valleys. The most dominant structural features are northwest trending fault zones, most of which either die out, merge with, or are terminated by the steep reverse faults at the southern margin of the nearby Transverse Ranges province. The major northwest trending fault zones include the San Andreas, San Jacinto, Whittier-Elsinore, and Newport-Inglewood.

The site is located in the Colorado Desert geomorphic province of southern California and is flanked by the San Bernardino Mountains of the Transverse Ranges geomorphic province to the north and the San Jacinto Mountains of the Peninsular Range geomorphic province to the south. These two distinct metamorphic-granitic mountain ranges are separated by a narrow gap known as the San Gorgonio Pass. More specifically, the site is situated in the north central portion of the Coachella Valley, an alluviated lowland extending southeast through the San Gorgonio Pass region to the north end of the Salton Sea and its geologic predecessor Lake Cahuilla to the south.

The valley lowland is traversed by multiple strands of the San Andreas Fault Zone, and is punctuated by localized compressional pressure ridges forming dome-shaped hills (Indio Hills) of uplifted sand and gravel and conglomerate bedrock. The dominant structural feature within this region is the active San Andreas transform fault system that consists of several major northwest trending, right lateral strike slip and thrust faults. The San Andreas Fault Zone (SAFZ), particularly, the San Andreas South Branch is located immediately north of the project site. This area of Southern California has and continues to experience earthquake activity as the SAFZ marks the boundary between the Pacific and North American Plates.

The Peninsular Ranges Geomorphic Province, located on the Pacific Plate, is moving northwesterly relative to the eastern portion of the Transverse Ranges Geomorphic Province, located within the North American Plate. The bulk of the generally right-lateral transform movement between the plates occurs historically as magnitude 6.0 to 7.3 Mw earthquakes along the SAFZ and its associated faults. The San Gorgonio Pass, located at the north end of the Coachella Valley is an area being stressed along the San Andreas Fault Zone, which separate the San Bernardino Mountains to the north and the San Jacinto Fault Zone and San Jacinto Mountains to the south.

3.2 Site Specific Geology

Based on the results of our field exploration and review of relevant geologic data for this area (*References*) the site subsurface materials consist of poorly graded, weakly cemented, loose to dense very fine to fine grained eolian or windblown sands and alluvial outwash deposits capped with engineered fill, see Figure 2, *Regional Geology Map*. The geologic units mapped at the site are discussed in the following sections in order of increasing age, and further described on the logs of geotechnical borings in Appendix A.

3.2.1 Residual/Topsoil (not a mapped unit)

Residual/topsoil materials mantle a small portion of the site in the eastern region. The materials generally consist of a surface layer of silty sand with sporadic desert vegetation consisting of short grass, weeds and sage brush. These materials are locally encountered to be up to a few inches thick and are expected to possess low expansion potential. Rodent burrowing is evident throughout the site.

3.2.2 Artificial Fill Certified (Afc)

The Arena footprint is mantled with engineered fill ranging in depth at explored locations from 6 to 8 feet in thickness (See Plate 1). The parking areas planned north and southwest of the Arena footprint are underlain partially by engineered fill grading easterly to natural alluvial and windblown deposits of the valley floor (Plate 1). Engineered fill was placed intermittently between September 27, 2011 through March 1, 2017 (ESS, 2017). Our investigation indicates material paced as fill generally consists of medium dense to dense, well graded, fine to coarse grained sand with silt, sand, sandy silt and fine to coarse gravelly silty sand with occasional asphalt fragments and clay pods within the matrix.

3.2.3 Quaternary Alluvium (Map Symbol: Qal)

The alluvial deposits of the Coachella valley include localized dune sand underlain by alluvial sediments of valley areas followed at depth by Ocotillo Conglomerate and older sedimentary bedrock formations (not encountered in our explorations). Within the planned development area, we encountered poorly graded windblown sand and alluvial outwash deposits.

Windblown deposits (eolian) primarily consist of very fine-grained frosted quartz sand grains deposited by the turbulent action of the wind and is friable and cohesionless. Overall, these granular materials generally possess low shrink swell characteristics, are potentially compressible/collapsible near surface under loads when saturated and display relative high permeability. Slight to severe caving of soil should be anticipated in unshored excavations.

The alluvial outwash deposits originate from the Thousand Palms Canyon to the north and is characterized as very fine grained, non-cohesive, poorly indurated, silty sand, sand and sandy silt with very minor thin beds and/or laminations of carbonate impacted windblown silt and oxidized silty clay. These deposits also possess low shrink swell characteristics and are potentially compressible/collapsible under loads when saturated.

Although the Palm Desert area is known for collapsible soils, based on laboratory test data from this study and a prior study (ESS, 2004), collapse potential is considered low.

The site is within a recognized blow sand hazard area. Fine particulate matter can create an air quality hazard if dust is blowing. Watering the surface and landscaping can mitigate this hazard.

3.3 Groundwater

The site lies within the Coachella Valley Groundwater Basin. Groundwater depths are expected to be greater than 247 feet bgs based on verbal discussions with the well operator indicating recent measurements recorded by the Coachella Valley Water District (CVWD). Groundwater levels may fluctuate with rainfall, irrigation, and leaky utility lines. Groundwater is not expected to pose a constraint to the project as currently planned.

3.4 Landslide and Debris Flows

Landslide debris flow materials were not encountered during our field investigation or mapped at the site based on review of geologic maps (Dibblee, 2008) and direct observation of site surface and subsurface conditions. On October 4, 2019 heavy rain originating above Thousand Palms Canyon resulted in flash flooding. Pulses of sediment laden water (debris flows) were observed and documented leaving the mouth of Thousand Palms Canyon, located approximately 3.1 miles north of the Arena site depositing material as sheet flow onto the alluvial fan. This fan is visible in aerial photos of the site. Lineaments observed in aerial photographs and on current google earth imagery indicate flows from the canyon are diverted to the southeast along the line of dune berms. The Arena site is protected to the north by the existing golf course, southeasterly by an outlet redistribution flood control channel and the west by Classic Club Boulevard and stormwater basin. Based on these conditions, the potential for debris flows or sheet flooding to impact the site are considered very low.

3.5 Faulting and Fissuring

Active fault traces are not mapped to traverse the site (Bryant and Hart, 2007) and evidence of onsite faulting (tonal and vegetation lineaments) were not observed during our investigation. Lineaments documented in ESS (2008) included a review of lineaments around the study area concluding nearby lineaments are a result of wind migrating sand, a conclusion agreed to by the County of Riverside. Fault related lineaments are visible in the Indio Hills north of the project, all of which are within the San Andreas Fault zone. Erosion and deposition are primarily responsible for the present physiography of the area.

The closest known active fault zones are the Southern Segment of the San Andreas Fault Zone located less than 2 miles northerly of the Arena site. This fault zone is predicted to have the most impact on this site and produce high ground accelerations as indicated below in Section 3.6.

3.6 Ground Shaking

Strong ground shaking can be expected at the site during moderate to severe earthquakes in this general region. This is common to virtually all of Southern California. The intensity of ground shaking at a given location depends primarily upon earthquake magnitude, site distance from the source, and site response (soil type) characteristics.

Accordingly, design of the project should be performed in accordance with all applicable current codes and standards utilizing the appropriate seismic design parameters to reduce seismic risk as defined by California Geological Survey (CGS) Chapter 2 of Special Publication 117A (CGS, 2008). The 2019 edition of the California Building Code (CBC) is the current edition of the code. Through compliance with these regulatory requirements and the utilization of appropriate seismic design parameters selected by the design professionals, potential effects relating to seismic shaking can be reduced.

As indicated in Section 2.3, the project site is classified as Seismic Site Class D based on site-specific characterization of the shear wave velocity of the upper 100 feet. Site-specific seismic parameters are required for this project, which is submitted under separate cover.

The following code-based seismic design parameters should be considered for design under the 2019 CBC:

Table 1. 2019 CBC Code-Based Seismic Design Parameters

Categorization/Coefficients	Code-Based [1] [2]
Site Longitude (decimal degrees) West	-116.3410
Site Latitude (decimal degrees) North	33.7798
Site Class	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s	1.981
Mapped Spectral Response Acceleration at 1s Period, S_1	0.785
Short Period Site Coefficient at 0.2s Period, F_a	1
Long Period Site Coefficient at 1s Period, F_v	null*
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	1.981
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	null*
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	1.32
Design Spectral Response Acceleration at 1s Period, S_{D1}	null*
Design Peak Ground Acceleration, PGA_M	0.90
Seismic Design Category	E

1. All were derived from the SEA web page: https://seismicmaps.org/
2. All coefficients in units of g (spectral acceleration)
3. *Requires C_S calculation, see below.

Based on the 2019 CBC Table 1613.2.3(2), the long period site coefficient should be determined in accordance with Section 11.4.8 of ASCE 7-16 since the mapped spectral response acceleration at 1 second is greater than 0.2g for Site Class D. In accordance with Section 11.4.8 of ASCE 7-16, *a site-specific seismic analysis is required*; however, the values provided herein may be utilized if design is performed in accordance with exception (2) in Section 11.4.8 of ASCE 7-16, with special requirements for the seismic response coefficient (C_S). The project structural engineer should review the seismic parameters.

3.7 Liquefaction and Seismic Settlement

The project is not located within a County of Riverside liquefaction susceptibility zone. Due to the absence of shallow groundwater, the potential for liquefaction-induced settlement is not considered a geologic hazard on this site. However, the potential for dynamic-induced dry settlement due to ground shaking does exist on this site due to potential densification in the underlying sand.

Based on the USGS online interactive deaggregation program (USGS, 2008), the modal seismic event is Moment Magnitude (Mw) 7.5 at a distance of 5.9 kilometers (see USGS analysis in Appendix C). Using two-thirds of PGA_M (or 0.60 g) and a modal magnitude of 7.5, the estimated dry settlement is expected to be less than ½ inch (see Appendix D). The differential settlement is expected to be less than ¼ inch over 30 feet.

3.8 Storm Induced Flooding

Review of *Palm Desert General Plan (2001) Exhibit V-6 Flood Zones in the Palm Desert Planning Area* indicate the site is mapped within Zone AO, area of 100-year flood occurring as sheet flow on sloping terrain with flood depths of 1 to 3 feet.

Although there is a general lack of seasonal precipitation at the site, monsoons occur and local storms could produce heavy rainfall leading to flash flooding in the distinct southeasterly trending drainages emanating from Thousand Palms Canyon to the north). Water erosion along defined drainage courses should also be anticipated.

3.9 Expansive/Collapsible Soils

Results of current and prior lab testing indicate the site soils in the near surface soils possess a low expansion potential (Appendix B).

Soil collapse, or hydro-consolidation, occurs when saturated soil units undergo a rearrangement of their grains and a loss of cohesion or cementation, resulting in substantial and rapid settlement under relatively light loads. Soil collapse is generally associated with recently deposited, Holocene-age soils that have accumulated in an arid or semi-arid environment. Wind-deposited sands and silts, and alluvial fan and debris flow sediments deposited during flash floods represent soils that are susceptible to collapse.

Surface water infiltration when combined with the weight of a structure, can start rapid settlement and cause foundations to crack. Based on review of laboratory testing results, the site soils generally possess low collapse potential. Proper surface drainage design, excavation, recompaction and moisture conditioning during preparation of the subgrade will reduce the risks associated with collapse.

Engineered fills are generally not considered susceptible to hydro-collapse. Considering the anticipated earthwork required to achieve design grades, the potential for hydro-consolidation to affect the project upon completion of grading is considered low.

3.10 Erosion

The project site is subject to erosion, runoff, and sedimentation due to the granular nature of the site soil and high winds of the region. Climate, topography, soil types and vegetation are key factors to erosion, runoff, and sedimentation processes. The site is within a recognized blow sand hazard area. Fine particulate matter can create an air quality hazard if dust is blowing. Moisture-conditioning the surface and landscaping can mitigate this hazard during and after completion of construction.

3.11 Slope Stability

Based on provided site plans, conventional cut and fill grading will be utilized to construct the project. Permanent unprotected slopes should be designed at a maximum slope angle of 3:1 (horizontal:vertical) or flatter. Slopes designed at 2:1 should be provided with adequate erosion control upon completion of grading.

The results of our analyses indicate that the proposed temporary and permanent cut and fill slopes will be surficially and grossly stable and have a minimum factor of safety of 1.25, 1.5 and 1.1 for temporary, permanent, and pseudo-static (seismic) conditions, respectively.

4.0 SUMMARY OF FINDINGS AND CONCLUSIONS

Based on the results of this geotechnical exploration, it is our opinion that the proposed Arena project is feasible from a geotechnical standpoint. The following is a summary of the main geotechnical and geologic findings or factors that may affect development of the site.

- The existing onsite soils appear to be suitable for reuse as fill during proposed grading provided they are relatively free of organic material and debris.

- The exposed soils at the surface are desiccated and disturbed. They are not suitable for support of proposed improvements in their current condition. We anticipate a preliminary overexcavation depth of 3 feet bgs to remove and replace unsuitable surface deposits as engineered fill. Deeper removals may be required locally depending upon the final grading concept and/or foundation design.

- Evidence of active faulting from the San Andreas Fault Zone was not observed in aerial photographs or during site geologic mapping. Strong ground shaking will occur at this site due to local earthquake activity.

- Based on laboratory test results and field observations, onsite earth materials are expected to possess low expansion potential and present a negligible sulfate exposure to concrete. Site soils are deemed very corrosive to ferrous metals. The site class for corrosion protection of concrete reinforcement is C1 per ACI 318. Additional testing should be performed during site grading to verify these findings.

- Unprotected pads and slope faces will be susceptible to erosion. This risk can be reduced by maintaining proper erosion control measures by means of jute netting, erosion control blankets, straw wattle, or any other approved methods.

- Caving and raveling of soils in unshored excavations should be expected.

5.0 RECOMMENDATIONS

5.1 General

Based on the results of this study, it is our opinion that the subject site is suitable for the proposed Arena project from a geotechnical viewpoint. Geotechnical recommendations for the proposed development are presented in the following sections and are intended to provide sufficient geotechnical information to develop the project plans in accordance with the 2019 edition of the California Building Code (CBC) requirements. The following recommendations may be superseded by more restrictive requirements of the structural engineer and the local reviewing agency.

The recommendations presented below are based on results our exploration, laboratory testing and engineering analysis. The recommendations are also predicated upon proper field observation and testing by Leighton personnel during construction. Leighton should be notified of suspected variances encountered in the field during construction to evaluate their effect on the recommendations presented herein.

Leighton should review the grading plan, foundation plan, structural loads and specifications as they become available to confirm that the recommendations presented in this report have been properly interpreted and incorporated into the plans prepared for the project.

5.2 Earthwork

We recommend all earthwork for the project be performed in accordance with the following recommendations, applicable County of Riverside grading ordinances and the General Earthwork and Grading Specifications included in Appendix E. The recommendations contained in Appendix E, are general grading specifications provided for typical grading projects and some of the recommendations may not be strictly applicable to this project. In case of conflict, the following recommendations shall supersede those provided in Appendix E.

5.2.1 Site Preparation and Remedial Grading

Prior to grading, the site should be cleared of surface and subsurface obstructions and vegetation. Roots and debris should be disposed of offsite. The groundwater pumping well should be abandoned or relocated in accordance with *California Department of Water Resources* regulations. The near surface soils (including topsoil, residual soil and alluvium) are potentially compressible in their present state and may settle under the surcharge of fills or foundation loading. The onsite soils may be used as compacted structural fill and should be free of organic material or construction debris. Near-surface engineered fill soils have dried below optimum moisture content and are not suitable for support of proposed improvements in current condition.

We anticipate a preliminary overexcavation depth of 3 feet bgs under proposed improvements and under any new fill used to raise site grades. If some future distress to paving is deemed acceptable, the overexcavation depth under areas planned for asphalt concrete paving may be reduced to 18 inches and proof-rolled with heavy compaction equipment to identify soft spots requiring localized overexcavation.

Where firm and non-organic subgrade soils are exposed; these areas should then be scarified to a minimum depth of 12-inches and re-compacted to achieve 95 percent relative-compaction; relative to the ASTM D1557 modified Proctor laboratory maximum density, at 3 percent over optimum moisture content. Deeper overexcavation and recompaction or other subgrade improvements (e.g. geogrids) may be required in areas of rutting, pumping and/or otherwise soft and yielding subgrades are exposed.

5.2.2 Fill Placement and Compaction

Onsite soils free of organics, debris and oversized material (greater-than 3-inches in largest dimension) are suitable for use as compacted structural fill. However, any soil to be placed as fill, whether onsite or imported material, should be first viewed by Leighton, and then tested if and as necessary, prior to approval for use as compacted fill. All structural fill must be free of hazardous materials.

All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to within 3 percent **above** optimum moisture content, and compacted to a minimum 95% relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve). Aggregate base for pavement sections should be compacted to a minimum of 95% relative compaction.

5.2.3 Temporary Excavations

All temporary excavations, including utility trenches, foundation excavations, and other excavations should be performed in accordance with project plans, specifications and all Occupational Safety and Health Administration (OSHA) requirements. The contractor is responsible for all temporary slopes and trenches excavated at the site and the design of any required temporary shoring. Shoring, bracing and benching should be performed by the contractor in accordance with the *California Construction Safety Orders*, current edition: http://www.dir.ca.gov/title8/sb4a6.html

During construction, exposed earth material conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Existing alluvial soils encountered are subject to caving and are classified as OSHA soil Type C. Therefore, unshored temporary cut slopes should be no steeper than 1½:1 (horizontal:vertical), for a height no-greater-than (≤) 20 feet (*California Construction Safety Orders*, Appendix B to Section 1541.1, Table B-1). Unshored cut slopes deeper than 20 feet should be sloped back at 2:1.

These recommended temporary cut slopes assume a level ground surface for a distance equal to one-and-a-half (x1.5) the depth of excavation. For steeper temporary slopes appropriate shoring may be required to protect the workers in the excavation and adjacent improvements. Such shoring should be implemented by the contractor and approved by the geotechnical consultant.

No surcharge loads should be permitted within a horizontal distance equal to the height of cut or 5 feet, whichever is greater from the top of the slope, unless the cut is shored appropriately.

5.2.4 Structural Fills

The onsite soils are generally suitable for re-use as compacted fill provided they are free of debris and organic matter. Areas to receive structural fill and/or other surface improvements should be scarified to a minimum depth of 12 inches, conditioned to at least 3 percent over optimum moisture content, and recompacted. All fill soils should be placed at a minimum of **95 percent relative compaction** (based on ASTM D 1557) and above optimum moisture content. Placement and compaction of fill should be performed in accordance with local grading ordinances under the observation and testing of the geotechnical consultant. The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in thickness.

Fills placed on slopes steeper than 5:1 (horizontal:vertical) should be benched into dense soils (see Appendix E for benching detail). Benching should be of sufficient depth to remove all loose material. A minimum bench height of 3 feet into approved material should be maintained at all times.

5.2.5 Shrinkage/Bulking

The volume change of excavated onsite materials upon compaction is expected to vary with materials, density, in-situ moisture content, location, and compaction effort. The in-place and compacted densities of soil materials vary and accurate overall determination of shrinkage and bulking cannot be made. Therefore, we recommend site grading include, if possible, a balance area or ability to adjust quantities to accommodate some variation. Based on our experience with similar materials, we anticipate 10 to 15 percent shrinkage in the on-site topsoil/alluvium.

5.2.6 Import Soils

Import soils and/or borrow sites, if needed, although not anticipated, should be evaluated by the geotechnical consultant prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less than 2 percent), have a very low expansion potential (with an Expansion Index less than 21) and have a low corrosion impact to the proposed improvements.

5.2.7 Utility Trenches

Utility trenches should be backfilled with compacted fill in accordance with Sections 306-1.2 and 306-1.3 of the *Standard Specifications for Public*

Works Construction, ("Greenbook"), 2018 Edition. Bedding sand should have a Sand Equivalent (SE) of 30 or greater. Laboratory testing (Appendix B) indicates material for this purpose is available onsite. Fill material above the pipe zone should be placed in lifts not exceeding 8 inches in uncompacted thickness and should be compacted to at least 95 percent relative compaction (ASTM D 1557) by mechanical means only.

5.2.8 Drainage

All drainage should be directed away from improvements, slopes and pavements by means of approved permanent/temporary drainage devices. Adequate storm drainage of any proposed pad should be provided to avoid wetting of foundation soils.

5.2.9 Slope Design and Construction

All fill slopes should be designed and constructed at 2:1 (horizontal:vertical) or flatter. These slopes are considered grossly stable for static and pseudostatic conditions. Such slopes should be observed by an engineering geologist during grading to verify exposed conditions and recommend remedial measures, if needed.

The outer portion of fill slopes should be either overbuilt by 2 feet (minimum) and trimmed back to the finished slope configuration or compacted in vertical increments of 5 feet (maximum) by a weighted sheepsfoot roller as the fill is placed. The slope face should then be track-walked by dozers of appropriate weight to achieve the final slope configuration and compaction to the slope face.

Slope faces are inherently subject to erosion, particularly if exposed to rainfall, wind and irrigation. Slope maintenance should be conducted as soon as possible in order to increase long-term surficial stability. Berms or drainage swales (brow ditches) should be provided at the top of fill slopes. Drainage should be directed such that surface runoff on the slope face is avoided.

5.3 Shoring

If shoring is required, soldier piles and lagging may be used. Soldier piles may consist of steel H-beams set in predrilled holes and backfilled with lean-mix concrete to the ground surface. If the depth of the excavation is less than approximately 15 feet, tieback anchors, or internal bracing are not expected to be required. Deeper excavations will require some form of bracing.

The potential raveling and caving of sand layers may pose difficulties in the drilling of the soldier piles and tie-back anchors. Accordingly, the shoring contractor should be prepared to use special techniques and measures, if necessary, to permit the proper installation of the soldier piles and tie-back anchors.

5.3.1 Lateral Earth Pressures

For design of cantilevered shoring, where the surface of the backfill is level, it can be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 35 pounds per cubic foot (pcf).

In addition to the recommended earth pressure, the shoring should be designed to resist any applicable surcharge loads due to foundation, storage, traffic, or other anticipated loads.

For the design of braced shoring, a uniform distribution of lateral earth pressure plus any surcharge loadings occurring as a result of traffic and adjacent foundations should be used. The recommended pressure distribution for the case where the grade is level behind the walls is 25***H*** in pounds per square foot (psf), where ***H*** is the height of the wall in feet.

In addition to the recommended earth pressure, the upper 10 feet of shoring adjacent to streets should be designed to resist a uniform lateral pressure 100 psf, acting as a result of an assumed 100 psf surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least 10 feet from the shoring, the traffic surcharge may be neglected. We can determine lateral surcharge pressures for specific cases, such as construction crane, concrete trucks, and other heavy construction equipment adjacent to shoring, if requested.

5.3.2 Surcharge Pressure from Adjacent Structures

Where building foundations are within a 1:1 plan projected upward from the bottom of the planned shoring and basement walls, a lateral surcharge load should be applied to the active earth pressure to account for the pressure imposed by the foundation. Once details of existing adjacent foundations are established, we can provide design surcharge pressures to be applied to shoring and basement walls. For preliminary design, a uniform horizontal surcharge pressure of ½ the bearing pressure of adjacent footings may be assumed.

5.3.3 Design of Soldier Piles

For the design of soldier piles spaced at least two diameters on centers (OC), the allowable lateral bearing value (passive value) of the soils below the level of excavation may be assumed to be 600 psf at the excavated surface, up to a maximum of 6,000 psf. To develop the full lateral value, provisions should be taken to assure firm contact between the soldier piles and the undisturbed soils. The concrete placed in the soldier pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile which is below the planned excavated level should be of sufficient strength to adequately transfer the imposed loads from the soldier pile to the surrounding soils.

The frictional resistance between the soldier piles and the retained earth may be used in resisting the downward component of the design load. The coefficient of friction between the soldier piles and the retained earth may be taken as 0.4. This value is based on the assumption that uniform full bearing will be developed between the steel soldier beam and the lean-mix concrete and between the lean-mix concrete and the retained earth. In addition, provided that the portion of the soldier piles below the excavated level is backfilled with structural concrete, the soldier piles below the excavated level may be used to resist downward loads. The frictional resistance between the concrete soldier piles and the soils below the excavated level may be taken as equal to 500 psf.

5.3.4 Lagging

Continuous lagging will be required between the soldier piles. Careful installation of the lagging will be necessary to achieve bearing against the retained earth.

The soldier piles should be designed for the full anticipated lateral pressure. However, the pressure on the lagging will be less due to arching in the soils. For clear spans up to 8 feet, we recommend that the lagging be designed for a semi-circular distribution of earth pressure where the maximum pressure is 400 psf at the midline between soldier piles, and 0 psf at the soldier piles.

5.3.5 Anchor Design

Tie-back friction anchors may be used to resist lateral loads. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn at 35 degrees from the vertical through the bottom of the excavation. The anchors should extend at least 40 feet beyond the potential active wedge and to a greater length if necessary to develop the desired capacities.

The capacities of anchors should be determined by testing of the initial anchors as outlined in the following section, Anchor Testing. For design purposes, it may be estimated that drilled friction anchors will develop an average friction value of 600 psf. For post-grouted anchors, it may be estimated that the anchors could develop an average friction of up to 1,800 psf. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. If the anchors are spaced at least 6 feet on centers, no reduction in the capacity of the anchors need be considered due to group action.

5.3.6 Anchor Installation

The anchors may be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes should be anticipated and provisions made to minimize such caving. Mining (removal of soils from the anchor holes without advancing the drilling auger) of the sandy and gravelly soils could occur and the shoring contractor should take special care to prevent, or at least minimize, such mining.

Conventional anchors should be filled with concrete placed by pumping from the tip outward, and the concrete should extend from the tip of the anchor to the active wedge. To minimize chances of caving, we suggest that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill may contain a small amount of cement to allow the sand to be placed by pumping.

5.3.7 Anchor Testing

For post-grouted anchors where concrete is used to backfill the anchor along its entire length, the test load should be computed as that required to develop the appropriate friction along the entire bonded length of the anchor. The test load should therefore be computed as:

$$P_{test} = P_{design} * \frac{L_t}{L_b} * M$$

where L_t=Total Length of Anchor
L_b=Post-grouted Length of Anchor
M=150%

However, based on our experience nearby, the unbonded length of anchors within the active wedge may be encased in PVC sheathing to prevent load transfer to surrounding soil. Accordingly, the test loads need not be increased using the criteria described above if the unbounded length of anchors is thus isolated from surrounding soil.

All of the production anchors should be pretested to at least 150% of the design load; the total deflection during the tests should not exceed 12 inches. The rate of creep under the 150% tests should not exceed 0.1 inch over a 15-minute period for the anchor to be approved for the design loading.

After a satisfactory test, each production anchor should be locked-off at the design load. The locked-off load should be verified by rechecking the load

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in the anchor. If the locked-off load varies by more than 10% from the design load, the load should be reset until the anchor is locked-off within 10% of the design load.

The installation of the anchors and the testing of the completed anchors should be observed by our firm.

5.3.8 Internal Bracing

Raker bracing, if used, could be supported laterally by temporary concrete footings (deadmen). For design of such temporary footings, poured with the bearing surface normal to rakers inclined at 45 to 60 degrees with the vertical, a bearing value of 4,000 psf may be used, provided the shallowest point of the footing is at least 1 foot below the lowest adjacent grade. To reduce the movement of the shoring, the rakers should be tightly wedged against the footings and/or shoring system.

5.3.9 Deflection

It is difficult to accurately predict the amount of deflection of a shored embankment. It should be realized, however, that some deflection will occur. We estimate that this deflection could be on the order of 1 inch at the top of a shored embankment up to 20 feet in height.

If greater deflection occurs during construction, additional bracing may be necessary to minimize settlement of adjacent structures and of any utilities in the adjacent streets. To reduce the deflection of the shoring, if desired, a greater active pressure could be used in the shoring design.

5.3.10 Monitoring

Some means of monitoring the performance of the shoring system is recommended. The monitoring should consist of periodic surveying of the lateral and vertical locations of the tops of all the soldier piles. We will be pleased to discuss this further with the design consultants and the contractor when the design of the shoring system is finalized.

5.4 Spread Footings

5.4.1 Bearing and Lateral Pressures

Based on our analysis, the proposed structures may be supported on shallow spread-type foundations, including spread footings, combined spread footings, and mat foundations. These foundations should be designed in accordance with the minimum geotechnical recommendations presented herein, and the 2019 CBC. In utilizing the minimum geotechnical foundation recommendations, the structural engineer should design the foundation system to acceptable deflection criteria determined for the project. Shallow spread-type foundations may be designed with the following geotechnical design parameters:

- Shallow spread-type foundations at the main concourse level may be designed to impose an allowable bearing pressure of 4,000 pounds per square foot (psf). Foundations at the Practice Ice and Event Level may be designed to impose an allowable bearing pressure of 6,000 psf. The bearing values above are net values. The weight of concrete in foundations may be assumed as 50 pcf.

- Footings should have a minimum width of 18 inches for continuous footings and 24 inches for isolated footings. Footings should have a minimum embedment of 2 feet below the lowest adjacent grade.

- A modulus of subgrade reaction of 40 pci may be used for preliminary design of footings, combined footings, and mat foundations.

- The passive earth pressure may be computed as an equivalent fluid having a density of 300 psf per foot of depth, to a maximum earth pressure of 3,000 pounds per square foot. A coefficient of friction between soil and concrete of 0.4 may be used. The frictional resistance and the passive resistance of the soils can be combined without reduction in determining the total lateral resistance.

5.4.2 Settlement

The project structural engineer should consider the potential effects of both static settlement and dynamic settlement presented below.

- ***Static Settlement*:** The total static settlement induced by a column load of 1,000 kips is estimated to be 1 inch. About half of the settlement induced by dead plus live loads is expected to be completed shortly after application of load. A differential static settlement of ½ inch over a 30-foot span may be considered for design purposes. Additional settlement may occur in the future if sites grades are raised or due to specific or large footing/foundation loads. Since settlement is a function of footing size and contact bearing pressure, differential settlement can be expected between adjacent columns or walls where a large differential loading condition exists.

- ***Dynamic Settlement*:** Based on our analysis, we estimate that total dynamic settlement may be less than ½ inch. Differential settlement is expected to be less than ¼ inch over a 30-foot horizontal span.

5.5 Deep Foundations

The proposed arena structures may be supported on cast-in-drilled-hole (CIDH) pile foundations. Pile segments within a 1:1 projection upward from adjacent retaining walls should be isolated from surrounding soils using Sonotubes or equivalents to avoid surcharging the adjacent walls. Deep foundations and shallow spread type foundations may be used in combination if differential settlement between adjacent columns is deemed compatible.

5.5.1 Axial Capacities

Allowable downward capacities for cast in drilled holed (CIDH) piles are as shown in the table below.

Allowable Axial Pile Capacities (in Kips)

Pile Length (feet)	18-inch-diameter	24-inch-diameter	30-inch-diameter	36-inch-diameter
30	55	75	95	115
40	95	130	165	200
50	130	195	255	305
60	165	260	355	440
70	200	320	450	580
75	220	355	500	650

Allowable uplift capacities may be assumed to be half of the values shown in the table above. Capacities for other pile diameters and lengths may be interpolated using the table above. Downward and uplift axial capacities shown in the table above do not include the pile self weight.

Ultimate capacities may be assumed to be twice the allowable values shown in the table above. A resistance factor of 0.7 should be applied to ultimate capacities for evaluation with factored loads (LRFD).
The capacities presented are based on the strength of the soils; the strength of the pile section should be checked to verify the structural capacity of the piles.

Piles in groups may be spaced at 3 pile diameters on-centers. If the piles are so spaced, no reduction in axial capacity due to group action need be considered in the design. Piles in groups spaced at 2 pile diameters on-centers may be assumed to have an efficiency of 70 percent (capacities should be reduced by 30 percent).

5.5.2 <u>Lateral Capacities</u>

Lateral loads may be resisted by the piles and by the passive resistance of the soils. The lateral capacity of the piles will depend on the pile type and size, the permissible deflection, and on the degree of fixity at the top of the pile.

We have calculated lateral load, maximum moments, and depths to maximum moment for 18-, 24-, 30-, and 36-inch-diameter CIDH concrete piles using the computer program LPILE by ENSOFT, Inc. We have assumed a concrete compressive strength value (f'_c) of 5,000 pounds per square inch (psi). The results are summarized in the tables below and details presented in Appendix F. Values for other pile diameters may be interpolated using the tables below.

Lateral Capacities of Free-Head CIDH Piles				
Pile Head Deflection (inches)	Pile Diameter (inches)	Shear Force at Pile Top (kips)	Maximum Bending Moment (kips-inch)	Depth to Maximum Moment (feet)
¼	18	13	411	15
½	18	17	607	15
¾	18	21	795	15
1	18	23	915	15
1¼	18	24	1,004	15
1½	18	25	1,045	15
1¾	18	25	1,061	15
2	18	25	1,069	15
¼	24	24	929	20
½	24	32	1,389	20
¾	24	39	1,816	20
1	24	44	2,167	20
1¼	24	47	2,365	20
1½	24	49	2,512	20
1¾	24	50	2,575	20
2	24	50	2,614	20
¼	30	40	1,764	23
½	30	52	2,597	23
¾	30	63	3,347	23
1	30	71	3,997	23
1¼	30	76	4,407	23
1½	30	80	4,661	23
1¾	30	81	4,823	23
2	30	83	4,939	23
¼	36	58	4,938	25
½	36	77	4,318	25
¾	36	93	5,574	25
1	36	105	6,668	25
1¼	36	113	7,410	25
1½	36	119	7,900	25
1¾	36	124	8,289	25
2	36	125	8,449	25

Lateral Capacities of Fixed-Head CIDH Piles				
Pile Head Deflection (inches)	Pile Diameter (inches)	Shear Force at Pile Top (kips)	Maximum Bending Moment (kips-inch)	Depth to Maximum Moment (feet)
¼	18	28	895	0
½	18	34	1,060	0
¾	18	37	1,069	0
1	18	39	1,069	0
1¼	18	40	1,069	0
1½	18	40	1,069	0
1¾	18	40	1,069	0
2	18	40	1,069	0
¼	24	54	2,145	0
½	24	66	2,588	0
¾	24	72	2,647	0
1	24	77	2,647	0
1¼	24	79	2,647	0
1½	24	80	2,647	0
1¾	24	81	2,647	0
2	24	81	2,647	0
¼	30	87	3,960	0
½	30	106	4,937	0
¾	30	116	5,046	0
1	30	124	5,046	0
1¼	30	128	5,046	0
1½	30	132	5,046	0
1¾	30	133	5,046	0
2	30	134	5,046	0
¼	36	131	6,792	0
½	36	159	8,445	0
¾	36	173	8,700	0
1	36	184	8,700	0
1¼	36	192	8,700	0
1½	36	197	8,700	0
1 ¾	36	202	8,700	0
2	36	204	8,700	0

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The analyses performed used the flexural stiffness of the piles computed from the modulus of elasticity (*E*) and moment of inertia (*I*). The modulus of elasticity (*E*) is derived based on the concrete compressive strength and the moment of inertia (*I*) is derived based on the pile cross-section geometry. The values of *E* and *I* are assumed constant along the entire length of the piles.

Lateral pile capacities shown in the tables above considered steel reinforcing of about 1 percent. Analysis model details are presented in Appendix F.

A resistance factor of 1 should be used for lateral capacity evaluation with factored loads.

The capacities presented in the table above are for pile lengths equal to or greater than 30 feet. This length is measured below the pile cap. The lateral capacity and reduction in the bending moment are based in part on the assumption that any required backfill adjacent to the pile caps and grade beams are properly compacted.

For piles in groups spaced at least 3 pile diameters on-center, no reduction in the lateral capacity need be considered for the first row of piles. For subsequent rows in the direction parallel to loading, piles in groups spaced closer than 8 pile widths on-center will have a reduction in lateral capacity due to group effects. The lateral capacity of piles in groups spaced at 3 pile widths on-center may be assumed to be reduced by half. The reduction for other pile spacings may be interpolated between no reduction for piles spaced at 8 pile widths on-center and the reduction for piles spaced at 3 pile diameters on-center.

The passive resistance of engineered fill against pile caps and grade beams will depend on the method of installation. The passive resistance of engineered fill may be assumed to be equal to the pressure developed by a fluid with a density of 300 pcf, up to a maximum pressure of 3,000 psf. The lateral resistance of the piles and the passive resistance of the soils may be combined without reduction in determining the total lateral resistance.

5.5.3 Settlement

The total settlement of structures supported on piles in anticipated to be on the order of ½ inch or less. About half of the settlement induced by dead plus live loads is expected to be completed shortly after application of load.

5.5.4 Installation

The potential raveling and caving of sand layers may pose difficulties in the drilling of the piles. Pile diameters greater than 36 inches will be especially susceptible to caving and raveling and will likely require full depth casing. Accordingly, the contractor should be prepared to use special techniques and measures, if necessary, to permit the proper installation of the piles. Pile integrity testing will be required for all piles with diameters greater than 36 inches.

Pile excavations should be filled with concrete on the same day they are drilled. The concrete should be placed with special equipment so that it is not allowed to fall freely more than 5 feet or strike the shaft walls. Drilling should not be performed within 5 feet of recently excavated shafts or poured piles until the concrete has been allowed to set for at least 6 hours. The concrete should be poured in a manner that will not result in concrete flowing into adjacent drilled shafts and prevent segregation of aggregate. We recommend that piles in groups be drilled and poured in an alternating sequence to minimize the potential for fresh concrete flowing into adjacent open pile shafts.

5.6 Flagpole-type Foundations

The proposed light poles and similar structures may be supported on flagpole-type foundations. Flagpole-type foundations may be designed to impose an allowable vertical bearing pressure of 3,000 pounds per square foot (psf) and an allowable lateral bearing pressure of 600 psf per foot below grade up to a maximum of 6,000 psf. The recommended bearing value is a net value, and the weight of concrete in the flagpole footings can be taken as 50 pounds per cubic foot.

5.6.1 Impact on Adjacent Structures

Flagpole footings may impose surcharge loading on adjacent structures. Their zone of influence may be assumed as a 1:1 plane projection up and out from any adjacent retaining wall toe.

For unrestrained (cantilever) retaining walls, the surcharge from vertical loading on a flagpole footing segment within the zone of influence may be assumed as one-third of the vertical load on the footing segment. For braced walls, the surcharge pressure intensity should be increased to one-half of the vertical load. The surcharge load may be applied as an equivalent uniform pressure projected at 1:1 horizontally and along the wall.

Flagpole footing segments within the zone of influence may be isolated from surrounding soils to avoid imposing surcharge loads due to vertical loads. Sonotubes wrapped with 2 layers of visqueen or equivalents may be used to isolate footing segments from surrounding soils.

Horizontal loads from flagpole footing segments within the influence zone will also induce surcharge loads on adjacent retaining walls within 7 diameters of the flagpole footing. The surcharge load may be projected at 1:1 horizontally onto the adjacent wall.

5.7 Slabs on Grade

Concrete slabs may be designed using a modulus of subgrade reaction of 100 pci provided the subgrade is prepared as described in Section 5.2 above. From a geotechnical standpoint, we recommend slab-on-grade be a minimum 5 inches thick with No. 3 rebar placed at the center of the slab at 24 inches on center in each direction. The structural engineer should design the actual thickness and reinforcement based on anticipated loading conditions. Where moisture-sensitive floor coverings or equipment is planned, the slabs should be protected by a minimum 10-mil-thick vapor barrier between the slab and subgrade. A coefficient of friction of 0.35 can be used between the floor slab and the vapor barrier.

Seating areas between the Event Level and Main Concourse may be installed directly over sloped subgrade constructed at 2:1 (horizontal to vertical) or flatter. Thickened edges or grade beams may be used to embed the seating areas onto the slope and resist downward movement. Resistance to lateral loads will be provided by a combination of friction between the soil and structure interface and passive pressure acting against the vertical portion of the thickened edge or grade beam. For calculating lateral resistance, a passive pressure of 200 psf per foot of depth to a maximum of 2,000 psf and a frictional coefficient of 0.4 may be used. Note that the passive and frictional coefficients do not include a factor of safety. The frictional resistance and the passive resistance of the soils can be combined without reduction in determining the total lateral resistance.

Minor cracking of concrete after curing due to drying and shrinkage is normal and should be expected; however, concrete is often aggravated by a high water/cement ration, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing, which should be anticipated at this site. Cracking due to temperature and moisture fluctuations can also be expected. The use of low-slump concrete or low water/cement ratios can reduce the potential for shrinkage cracking. Additionally, our experience indicates that the use of reinforcement in slabs and foundations can generally reduce the potential but not eliminate for concrete cracking.

To reduce the potential for excessive cracking, concrete slabs-on-grade should be provided with construction or weakened plane joints at frequent intervals. Joints should be laid out to form approximately square panels.

5.7.1 Moisture Vapor Retarder

The following recommendations are for informational purposes since they are unrelated to the geotechnical performance of the foundation. Post-construction moisture migration should be expected below the foundation.

In general, interior floor slabs at or near the existing ground surface with moisture sensitive floor coverings are recommended to be underlain by a minimum 10-mil thick vapor retarder that has a permeance of less than 0.3 perms, as determined by ASTM E 96, and meets the applicable code requirements (ASTM E1745). The use of a capillary moisture break (crushed gravel layer) in conjunction with a vapor retarder is not considered to be necessary due to the lack of shallow groundwater conditions unless required by code. A sand layer below the synthetic sheeting will, however, serve to protect the sheeting from punctures if the underlying soils or gravel layer contain sharp, angular particles. Sand layer thickness above the

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barrier should be determined by the engineer/architect as they deem necessary. Sand layers should be installed where applicable in accordance with ACI Publication 302 Guide for Concrete Floor and Slab Construction.

Leighton does not practice in the field of moisture vapor transmission evaluation, since this is not specifically a geotechnical issue. Therefore, we recommend that a qualified person, such as the flooring subcontractor and/or structural engineer, be consulted to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. That person should provide recommendations for mitigation of potential adverse impact of moisture vapor transmission on various components of the structures as deemed appropriate.

5.8 Retaining Walls

The following soil parameters may be used for the design of retaining walls with level backfill:

Conditions	Equivalent Fluid Pressure (psf per foot)
Active	35
Seismic Increment (Additive to Active Pressure)	25
At-Rest	60
Passive	300

Parameter	Value
Coefficient of Friction	0.4
Soil Friction Angle	30 degrees

Care should be taken to provide appropriate drainage so as no water is allowed to remain behind the retaining wall for any significant length of time. In addition to the recommended earth pressures, walls below grade adjacent to existing structures or streets and areas of traffic should be designed to accommodate surcharge loads. For traffic surcharge, a uniform lateral pressure of 100 pounds per square foot acting as a result of an assumed 300 pounds per square foot surcharge behind the wall due to normal traffic; the traffic surcharge load may be neglected provided a minimum of 10 foot clearance between the wall and the traffic is maintained.

For preliminary surcharge loading from adjacent temporary or permanent loading, a uniform horizontal surcharge of $^1/_3$ of the bearing value may be used for active conditions. A horizontal surcharge of ½ of the bearing value may be used for at-rest conditions.

Light weight cellular concrete or geofoam backfill may be used to reduce earth pressures on retaining walls. A nominal equivalent earth pressure of 15 pcf should be applied to walls backfilled with these types of materials provided that field verification and testing demonstrates that the selected materials are capable of supporting a vertical face for the full backfill height. The backfill should extend to or below a 1:1 projection from the bottom of the wall.

If permanent shoring is to be constructed as part of retaining wall systems, shoring should be designed to accommodate the earth pressures discussed above instead of those shown in the preceding section for temporary shoring. Soil ties anchored by concrete deadmen may be an efficient means of supporting retaining walls. For calculating lateral resistance of concrete deadmen, a passive pressure of 300 psf per foot of depth below the lowest adjacent grade to a maximum of 3,000 psf and a frictional coefficient of 0.4 may be used. Note that the passive and frictional coefficients do not include a factor of safety. The frictional resistance and the passive resistance of the soils can be combined without reduction in determining the total lateral resistance.

5.9 Location of Seismic Base

The soil profile over the depth of basement levels is not liquefiable and is sufficiently dense/stiff to transmit seismic forces near grade. Accordingly, the seismic base may be established at the ground floor level if the lateral stiffness of the basement is deemed sufficient by the structural engineer of record.

5.10 Geochemical Characteristics

Sulfate Exposure: Sulfate ions in the soil can lower the soil resistivity and can be highly aggressive to Portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. A potentially high sulfate content could also cause corrosion of reinforcing steel in concrete. Section 1904A of the 2019 California Building Code (CBC) defers to the American Concrete Institute's (ACI's) ACI 318-14 for concrete durability requirements. Table 19.3.1.1 of ACI 318-14 lists "*Exposure categories and classes*," including sulfate exposure as follows:

Sulfate Concentration and Exposure

Soluble Sulfate in Water (parts-per-million-ppm)	Water-Soluble Sulfate (SO_4) in soil (percentage by weight)	ACI 318-14 Sulfate Class
0-150	0.00 - 0.10	S0 (negligible)
150-1,500	0.10 - 0.20	S1 (moderate*)
1,500-10,000	0.20 - 2.00	S2 (severe)
>10,000	>2.00	S3 (very severe)

Laboratory testing (Appendix B) indicated a negligible to moderate concentration of soluble sulfates (*132 ppm to 235 ppm*) in onsite soils for representative samples within the Arena footprint and parking areas. Additional corrosion testing should be performed on representative finish grade soils at the completion of rough grading. Concrete foundations in contact with site soils should be designed in accordance with 2019 CBC.

Ferrous Corrosivity: Many factors can modify corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "*Effects of Soil Characteristics on Corrosion*" (February 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as follows:

Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Acidity is an important factor of soil corrosivity. The lower the pH (the more acidic the environment), the higher the soil corrosivity will be with respect to buried metallic structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint. Chloride and sulfate ion concentrations, and pH appear to play secondary roles in modifying corrosion potential. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures.

Based on the mineral content of water used to irrigate the area and results of resistivity testing (*1900 to 3200 ohm-cm*), the onsite soils are anticipated to be corrosive to severely corrosive to ferrous metals and deleterious to copper. Ferrous pipe should be avoided by using high density polyethylene (HDPE) or other non-ferrous pipe when possible. Ferrous pipe, if used, should be protected by polyethylene bags, tape or coatings, dielectric fittings or other means to separate the pipe from onsite soils. Results of corrosion testing are included in Appendix B.

5.11 Preliminary Pavement Design Parameters

The required paving and base thicknesses will depend on the expected wheel loads and volume of traffic (Traffic Index or TI). Assuming the paving subgrade will consist of the on-site or comparable soils compacted to at least 95% of the maximum dry density obtainable by the ASTM Designation D1557 method of compaction as recommended, the minimum recommended paving thicknesses are presented in the following table.

Area	Traffic Index	Asphalt Concrete (inches)	Base Course (inches)
Car Parking	4	3	4
Light Truck	5	3	6
Heavy Truck	6	3	8
Main Drives	7	4	8

We have assumed that the subgrade will have an R-value of at least 40 (onsite soils from the near surface had R-values of 49 to 63). The asphalt paving sections were determined using the Caltrans design method. We can determine the recommended paving and base course thicknesses for other Traffic Indices if required. Careful inspection is recommended to verify that the recommended thicknesses or greater are achieved, and that proper construction procedures are followed. Traffic Indexes (TIs) used in our pavement design are considered reasonable values for proposed auto parking lots, and should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Higher TIs should be used in heavy truck traffic areas or high-volume lanes.

5.12 Portland Cement Concrete Paving

We have assumed that the subgrade will have an R-value of at least 40, which will need to be verified during grading. Portland cement concrete paving sections were determined in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for a range of Traffic Indices are presented in the following table. We have assumed that the Portland Cement Concrete will have a compressive strength of at least 3,000 pounds per square inch.

Area	Traffic Index	PCC (inches)	Base Course (inches)
Car Parking	4	5	4
Light Truck	5	6	4
Heavy Truck	6	7	4

The paving should be provided with expansion joints at regular intervals no more than 15 feet in each direction. Load transfer devices, such as dowels or keys, are recommended at joints in the paving to reduce possible offsets. The paving sections in the above table have been developed based on the strength of unreinforced concrete. Steel reinforcing may be added to the paving to reduce cracking and to prolong the life of the paving.

Paving Materials: Asphalt concrete, aggregate base and Portland Cement Concrete (PCC) should conform to Caltrans Standard Specifications (2018 Edition).

- **Asphalt Concrete (Hot Mixed Asphalt)** for pavement should be Type A and should conform to Section 39 of the *Standard Specifications*. Asphalt concrete specimens should be tested for surface abrasion in accordance with CT-360.

- **Class 2 Aggregate Base (AB)** should conform to Section 26 of the *Standard Specifications*.

- **Portland Cement Concrete (PCC)** pavement should conform to Section 40 of the *Standard Specifications*. PCC pavement materials (pavement, structures, minor concrete) should conform to Section 90 of the *Standard Specifications*.

As an alternative, asphalt concrete can conform to Section 203-6 of the *Standard Specifications for Public Works Construction* (Green Book), 2018 Edition. Crushed aggregate base or crushed miscellaneous base can conform to Sections 200-2.2 and 200-2.4 of the *Standard Specifications for Public Works Construction* (Green Book), 2018 Edition, respectively.

6.0 GEOTECHNICAL CONSTRUCTION SERVICES

Geotechnical review is of paramount importance in engineering practice. Poor performances of many foundation and earthwork projects have been attributed to inadequate construction review. We recommend that Leighton be provided the opportunity to review the final grading plan, shoring and foundation plan(s).

Reasonably-continuous construction observation and review during site grading and foundation installation allows for evaluation of the actual soil conditions and the ability to provide appropriate revisions where required during construction. Geotechnical conclusions and recommendations presented herein should be reviewed and verified by Leighton during construction, and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- After completion of site demolition and clearing,
- During ground preparation, excavations, overexcavation of soils
- During compaction of all fill materials,
- After excavation of all footings, and prior to placement of concrete,
- During subgrade preparation, base placement and asphalt paving;
- During utility trench backfilling and compaction, and
- When any unusual conditions are encountered.

7.0 LIMITATIONS

This report was based in part on data obtained from a limited number of observations, site visits, soil excavations, samples and tests. Such information is, by necessity, incomplete. The nature of many sites is such that differing soil or geologic conditions can be present within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, our findings, conclusions and recommendations presented in this report are based on the assumption that we (Leighton Consulting, Inc.) will provide geotechnical observation and testing during construction as the Geotechnical Engineer of Record for this project. Please refer to Appendix G, GBA's *Important Information About This Geotechnical Report*, prepared by the Geoprofessional Business Association (GBA) presenting additional information and limitations regarding geotechnical engineering studies and reports.

This report was prepared for the sole use of CAA ICON (Client) and their design team, for application to design of the proposed Ice Hockey Arena improvements, in accordance with generally accepted geotechnical engineering practices at this time in California. Any unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Leighton Consulting, Inc.

8.0 REFERENCES

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Project: 12915.001	Eng/Geol: SIS/JAR
Scale:1 " = 2,000 '	Date: October 2020

Base Map: ESRI ArcGIS Online 2020
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

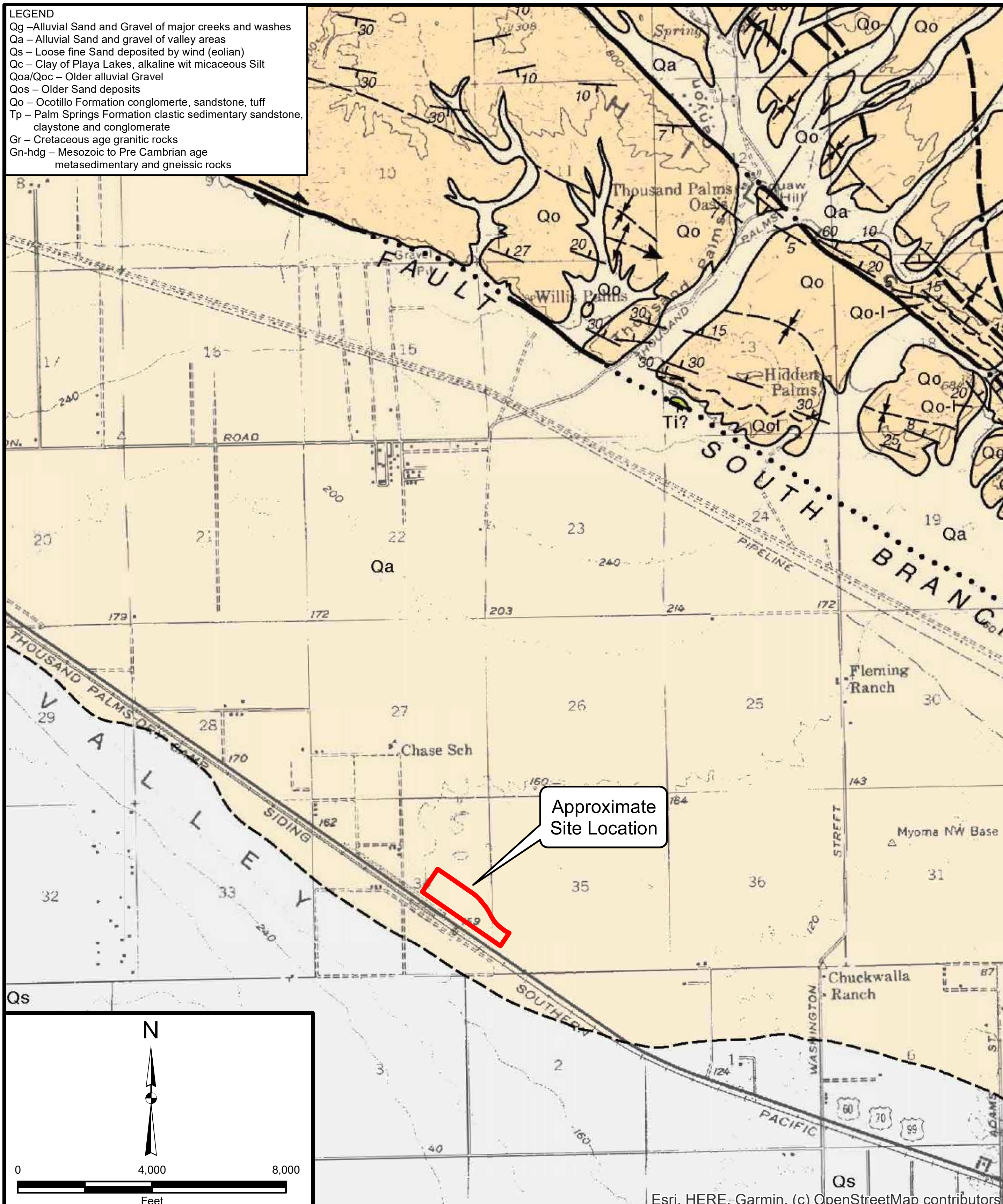
SITE LOCATION MAP

Proposed Riverside County Arena
Coachella Valley, Palm Desert, California

Figure 1

Leighton

Map Saved as V:\Drafting\12915\001\Maps\12915.001_F01_SLM_2020-10-15.mxd on 10/15/2020 9:01:16 AM



Project: 12915.001	Eng/Geol: CCK/JAR
Scale:1 " = 4,000 '	Date: October 2020

Base Map: Geologic Map of the Thousand Palms & Lost Horse Mountain 15 minute Quadrangles by Thomas W. Dibblee, JR., 2008
Thematic Information: Leighton, USGS
Author: Leighton Geomatics (btran)

REGIONAL GEOLOGY MAP

Proposed Riverside County Arena
Coachella Valley, Palm Desert, California

Figure 2

Leighton

Map Saved as V:\Drafting\12915\001\Maps\12915.001_F02_RGM_2020-10-15.mxd on 10/15/2020 10:29:41 AM

Plate 1	Project: 12915.001	Eng/Geol: CCK/JAR
Leighton	Scale: 1 " = 100 feet	Date: November 2020
	Base Map: ESRI ArcGIS Online 2020 Thematic Information: Leighton Author: Leighton Geomatics (btran)	

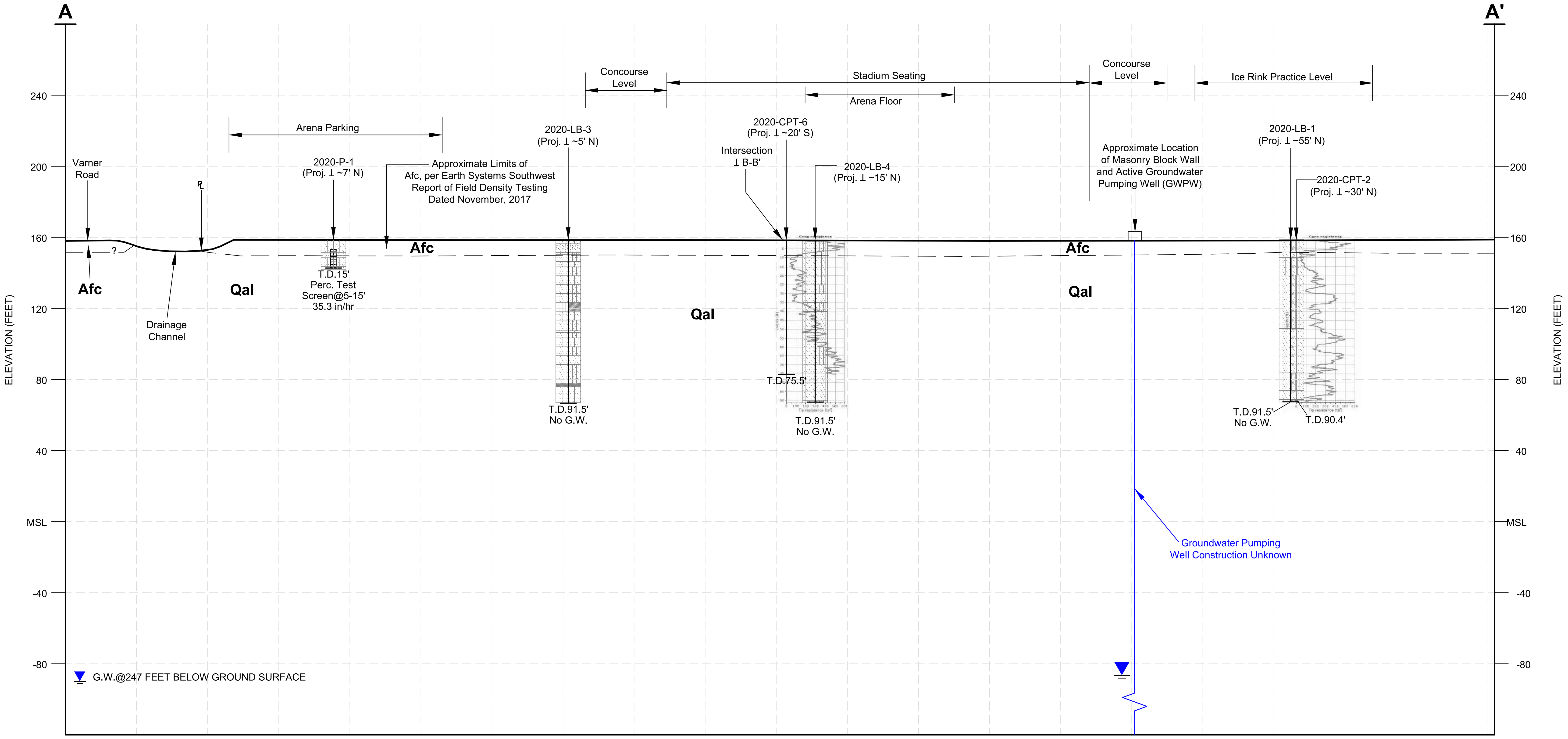
EXPLORATION LOCATION MAP

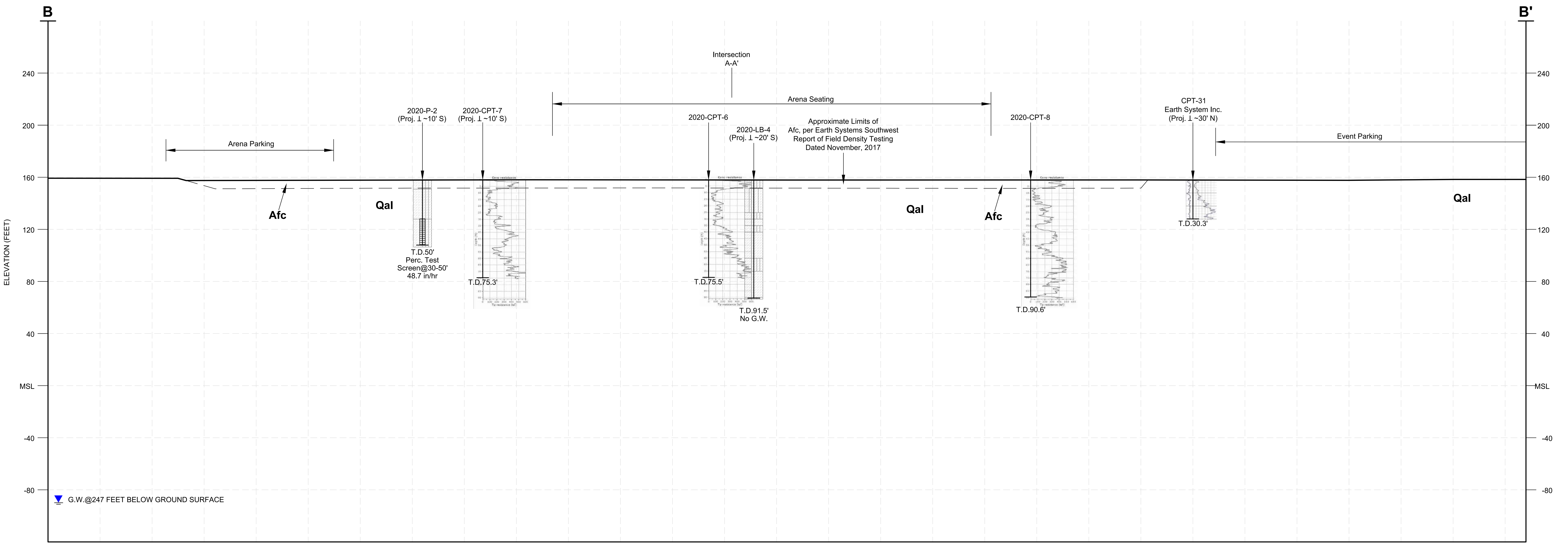
Proposed Riverside County Arena

Coachella Valley, Palm Desert, California

Map Saved as V:\Drafting\12915\001\Maps\12915.001_P01_ELM_2020-11-09.mxd on 11/5/2020 3:05:01 PM

GEOTECHNICAL CROSS SECTIONS A-A' AND B-B' Proposed Riverside County Arena Coachella Valley, Palm Desert, California		Plate 2
Proj: 12915.001	Eng/Geol: CK/JAR	Leighton
Scale: 1"=40'	Date: November 2020	





ARTIFICIAL FILL, CERTIFIED (Afc): CHARACTERIZED AS MEDIUM DENSE TO DENSE, WELL GRADED, FINE TO COARSE SAND WITH SILT, SAND, SANDY SILT AND FINE TO COARSE GRAVELLY SILTY SAND WITH ASPHALT FRAGMENTS AND CLAY PODS IN MATRIX. (ESS, 2017)

QUATERNARY ALLUVIUM (Qal): ALLUVIAL SAND AND GRAVEL OF COACHELLA VALLEY AREA, LOOSE TO DENSE POORLY GRADED SAND WITH SILT, SILTY SAND, SAND WITH THIN INTERBEDS OF CARBONATE IMPACTED SILT AND CLAY

USCS GRAPHICS (BORINGS)

- SANDY CLAY, SILTY CLAY AND CLAY (CL)
- SILTY SAND WITH CLAY (SM-SC)
- SILTY CLAY TO CLAYEY SILT (CL-ML)
- SILTY CLAY WITH SAND (CL-SP)
- SILTY SAND TO SANDY SILT (SM-ML)
- SILTY SAND (SM)
- CLAYEY SAND (SC)
- SAND WITH SILT (SP-SM)
- SANDY (SP)
- SANDY GRAVEL (GP)
- CLAYEY GRAVEL (GC)
- SANDY SILT (ML)

APPENDIX A

FIELD EXPLORATION LOGS

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APPENDIX A-1

FIELD EXPLORATION LOGS
(THIS STUDY)

Leighton

GEOTECHNICAL BORING LOG 2020-LB-1

Project No. 12915.001
Project Riverside Arena
Drilling Co. Martini Drilling
Drilling Method Hollow Stem Auger - 140lb - Autohammer - 30" Drop
Location See Plate 1 - *Exploration Location Map*

Date Drilled 10-9-20
Logged By BSS
Hole Diameter 8"
Ground Elevation '
Sampled By BSS

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	Soil Description	Type of Tests
	0		B-1				SP-SM	**Artificial Fill certified (Afc):** @0': Poorly graded SAND with SILT, dark olive brown, slightly moist, fine sand, few gravel, minor rodent burrowing	CN, CR DS, EI MX, RV
			R-1	20 28 35				@2': dense, olive brown, moist, fine sand, few fine gravel	
	5		R-1	16 37 45				@5': dense, dark olive brown, moist, fine to medium sand, few gravel	
			R-2	7 11 27	109	11	SP	**Quaternary Alluvium (Qal): Alluvial Sand and gravel of valley areas** @7': Poorly graded SAND, dense, grayish brown, slightly moist, fine sand	
	10		R-3	4 6 10	97	8	SM	@10': SILTY SAND, medium dense, grayish brown, slightly moist, fine sand, trace silt	CN, DS
			R-4	5 8 10	98	4		@12': medium dense, light olive brown, slightly moist, fine sand, micaceous	CN, DS
			B-2						
	15		R-5	3 6 10	95	2		@15': medium dense, light brownish gray, slightly moist, fine sand, some mica, trace silt	CN, CR DS, EI
	20		R-6	7 15 21	103	1	SP-SM	@20': Poorly graded SAND with SILT, dense, light brownish gray, dry, fine sand, trace medium sand	DS
	25		S-7	6 11 14		2		@25': dense, light brownish gray, dry, fine sand, some mica	
	30								

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

* * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * *

GEOTECHNICAL BORING LOG 2020-LB-1

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30			R-8	8 20 28	76	9	SP-SM	@30': Poorly graded SAND with SILT, dense, light gray, dry, fine sand	DS
	35			S-9	6 9 12		2		@35': dense, light gray, dry, fine sand	
	40			R-10	8 20 36	106	1		@40': dense, gray, dry, fine sand, some mica	
	45			S-11	7 11 14		1		@45': dense, gray, dry, fine sand, trace silt	
	50			R-12	11 21 41	104	1	SP	@50': SAND, very dense, light gray, dry, very fine to fine sand, trace coarse sand	
	55			S-13	9 19 27		1		@55': very dense, yellowish brown, very fine sand	
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG 2020-LB-1

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	60			R-14	10 15 20	98	1	SP	@60': Poorly graded SAND, dense, light gray, dry, very fine to fine sand, some mica	
	65			S-15	9 18 32				@65': dense, dry, (no recovery)	
	70			R-16	8 16 24	96	1		@70': dense, light gray, dry, fine sand, micaceous	
	75			S-17	7 8 14		4	SP-SM	@75': Poorly graded SAND with SILT, dense, light brownish gray, slightly moist, fine sand	
	80			R-18	8 22 50-5"	100	6		@80': very dense, light brownish gray, slightly moist, fine sand, some interbedded silt laminations	
	85			S-19	12 17 23			SP	@85': Poorly graded SAND, dense, light gray, dry, fine sand, some mica	
	90									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-1

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	90			R-20	8 50-6"	99	11	SP-SM	@90': Poorly graded SAND with SILT, very dense, light brownish gray, slightly moist, fine sand, some interbedded silt laminations	
									Total Depth of Boring: 91.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-9-2020.	
	95									
	100									
	105									
	110									
	115									
	120									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

* * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * *

GEOTECHNICAL BORING LOG 2020-LB-2

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
	0			B-1 R-1	14 14 22			SP-SM	**Artificial Fill, certified (Afc):** @0': Poorly graded SAND with SILT, medium dense, dark olive brown, slightly moist, fine to medium sand, few gravel	
								SM	@2': SILTY SAND, medium dense, dark olive brown, moist, fine sand	
	5			R-1	14 26 25	114	3		@5': dense, light brownish gray, slightly moist, fine sand, some silt laminations	
				R-2	4 7 13	102	2	SP-SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @6.5': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine to medium sand	
	10			R-3	3 7 14	105	2	SP	@10': Poorly graded SAND, medium dense, light brownish gray, slightly moist, fine to medium sand, some mica	
	15			R-4	6 11 20	114	1	SP-SM	@15': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine sand, few coarse sand, some interbedded silt laminations	
	20			R-5	6 13 22	112	1		@20': dense, light gray, dry, fine to medium sand	
	25			S-6	4 8 7				@25': medium dense, light brownish gray, dry, fine sand	
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-2

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30			R-7 B-2	6 19 32	112	1	SP	@30': Poorly graded SAND, dense, light gray, dry, fine to medium sand, trace silt	
	35			S-8	6 13 19				@35': dense, light gray, dry, fine sand, micaceous	
	40			R-9	6 14 26	102	1		@40': Poorly graded, dense	
	45			S-10	8 14 13				@45': dense, light brownish gray, dry, fine sand, few mica	
	50			R-11	7 16 26	101	1		@50': dense, very fine grained sand	
	55			S-12	5 6 9			SP-SM	@55': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, very fine to fine sand, some silt laminations	
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
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- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-2

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	60			R-13	13 24 50-6"	106	1	SP	@60': Poorly graded SAND, very dense, light gray, dry, fine sand, micaceous	
	65			S-14	10 17 25		1		@65': very dense, light gray, dry, fine sand, micaceous	
	70			R-15	6 40 50-5"	114	2	SP-SM	@70': Poorly graded SAND with SILT, very dense, light brownish gray, dry, fine sand, some mica	
	75			S-16	12 18 18		1	SP	@75': Poorly graded SAND, very dense, light brownish gray, slightly moist, fine sand, some mica	
	80			R-17	10 50-6"	107	2		@80': very dense, light gray, slightly moist, fine to medium sand, some mica	
	85			S-18	4 8 16		2	SM	@85': SILTY SAND, very dense, grayish brown, moist, fine sand, to Sandy SILT	
	90									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
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- RV R VALUE
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- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-2

Project No.	12915.001	**Date Drilled**	10-9-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	90			R-19	10 19 39	95	8	SP-SM	@90': Poorly graded SAND with SILT, very dense, grayish brown, slightly moist, fine sand	
									Total Depth of Boring: 91.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-9-2020.	
	95									
	100									
	105									
	110									
	115									
	120									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-3

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			BB-1				SM	**Artificial Fill certified (Afc):** @0': Loose SAND, sparse vegetation, fine to coarse sand with silt, rodent burrows, trace granitic cobble at surface	
								SPg		
	5			R-1	32 50/6"	126	2		@2': Well graded GRAVELLY SAND (SPg), dense, brown, dry, fine to coarse sand, fine to coarse gravel, crushed base material with asphalt and concrete fragments	
				R-2	4 8 13	104	5	SP-SM	@7': Poorly graded SAND with SILT, medium dense, olive brown, slightly moist, with clay pods and thin clay laminations @8 feet	
								SP-SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas**	
	10			R-3	5 7 9	107	3		@8': SAND with SILT, medium dense, brown, moist, fine grained	
				R-4	3 4 10	103	5	SM	@12': Poorly graded SILTY SAND, medium dense, olive brown, slightly moist, fine grained, micaceous	
	15			R-5	4 5 8	87	5	SP-SM	@15': SAND with SILT, dense, olive brown, slightly moist, very fine sand and clay laminations, reddish brown	
	20			S-1	4 9 14		1	SM	@20': Poorly graded SILTY SAND, dense, yellow brown, moist, fine grained, micaceous	
	25			R-6	7 19 35	96	7	SP-SM	@25': Poorly graded SAND with SILT, dense, light brown, dry, fine to medium sand, mild carbonate reaction with HCl	
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-3

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S-2	8 11 17		7	SP-SM	@30': Poorly graded SAND with SILT, medium dense, dry, fine grained, with few coarse sand, thin beds	
	35			R-7	5 13 30	102	3	ML-CL	@35': SANDY SILT with CLAY, hard, olive brown, slightly moist, thin bedded silt and clay, strong $CaCO_3$ reaction in clay beds	
	40			S-3	8 13 20			SM	@40': Poorly graded SILTY SAND, dense, grey brown, dry to slightly moist, fine grained, micaceous	
	45			R-8	18 27 50/6"	111	1	SP-SM	@45': Poorly graded SAND with SILT, very dense, olive brown, dry, very fine sand	
	50			S-4	9 13 20				@50' to 51': Very fine grained	
								ML	@51': Windblown SILT, dense, frosted quartz grains	
								SP-SM		
	55			R-9	10 19 28	105	1	SM	@55': Poorly graded SILTY SAND, dense, grey brown, dry, very fine grained, micaceous	
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
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- DS DIRECT SHEAR
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- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
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- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-3

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	Soil Description	Type of Tests
	60			S-5	14 22 27			SP-SM	@60': SAND with SILT, very dense, grey brown, dry, very fine sand, with thin silt bed and clay lamination, strong carbonate reaction in silt bed	
	65			R-10	11 27 50/4"	135	1	SP	@65': Poorly graded SAND, very dense, yellow brown, dry, fine to medium sand	
	70			S-6	10 17 26			SP-SM	@70': Poorly graded SAND with SILT, very dense, grey brown, dry, very fine grained, with mica	
	75			R-11	19 27 50/6"	136	1		@75': Very dense, very fine sand	
	80			S-7	7 11 25			CL SP-SM CL	@80': SAND with SILT, thinly bedded over SILTY CLAY, abrupt contact with sand below, SILTY CLAY on top, CLAY bed, olive brown to orange brown, oxidized, strong carbonate reaction in CLAY	
	85			R-12	37 50/4"	107	2	SM	@85': SILTY SAND, very dense, olive brown, dry, very fine sand, with thin bedded silt, strong $CaCO_3$ reaction in silt beds	
	90									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
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- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-3

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	90			S-8	12 19 26		2	SM	@90': Very dense, very fine grained	
									Total Depth of Boring: 91.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-12-2020.	
	95									
	100									
	105									
	110									
	115									
	120									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-4

Project No.	12915.001	**Date Drilled**	10-13-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SP-SM	**Artificial Fill certified (Afc):** @0': Poorly graded SAND with SILT, medium dense, light olive brown, slightly moist, fine sand, few gravel @0.5': SILTY SAND (SM), medium dense, light olive brown, slightly moist, fine sand, few gravel	CN, DS, CR, EI, MAX, RV
	5			R-1 B-1	18 31 38				@5': dense, grayish brown, slightly moist, fine to medium sand, more gravel	
				R-2	6 8 9	100	6	SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @7': Poorly graded SILTY SAND, medium dense, grayish brown, slightly moist, fine sand	CN, DS
	10			R-3	4 6 8	104	2		@10': medium dense, light brownish gray, moist, fine sand, some interbedded clay	CN, DS
				R-4	5 6 11	110	3		@12': medium dense, light brownish gray, slightly moist, fine sand, some interbedded silt and clay	
	15			R-5	7 8 10	100	4		@15': medium dense, light brownish gray, slightly moist, fine sand, some mica	CN, DS
	20			R-6	7 13 21	106	5		@20': medium dense, grayish brown, moist, fine sand, some clay laminations	DS
	25			S-7	4 7 10		2	SP-SM	@25': Poorly graded SAND with SILT, medium dense, grayish brown, moist, fine sand, some clay laminations	
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-4

Project No.	12915.001	**Date Drilled**	10-13-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	30			R-8	4 7 17	82	8	SP	@30': Poorly graded SAND, medium dense, light brownish gray, slightly moist, fine sand, some mica	DS
	35			S-9	3 5 6		2	SP-SM	@35': Poorly graded SAND with SILT, medium dense, grayish brown, moist, very fine to fine sand	
	40			R-10	10 20 46	104	3	SP	@40': Poorly graded SAND, dense, light gray, slightly moist, fine sand	
	45			S-11	4 7 9		3		@45': medium dense, light brownish gray, slightly moist, fine sand, some mica	
	50			R-12	8 19 40	106	2		@50': very dense, light gray, slightly moist, fine sand	
	55			S-13	5 7 10		8		@55': medium dense, grayish brown, moist, fine sand, some silt laminations	
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

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GEOTECHNICAL BORING LOG 2020-LB-4

Project No.	12915.001	**Date Drilled**	10-13-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	60			R-14	10 15 22	105	5	SP-SM	@60': Poorly graded SAND with SILT, dense, grayish brown, slightly moist, fine sand, some silt laminations with carbonate, micaceous	
	65			S-15	10 17 23				@65': very dense, light gray, dry, fine sand	
	70			R-16	12 27 50-5"	114	1	SP	@70': Poorly graded SAND, very dense, light gray, dry, fine sand	
	75			S-17	12 21 25				@75': dense, light gray, dry, fine to medium sand	
	80			R-18	18 33 50-5"	133	3		@80': poorly graded, very dense, light gray, dry, fine sand	
	85			S-19	18 21 25				@85': Very dense, fine grained	
	90									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
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- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-4

Project No.	12915.001	**Date Drilled**	10-13-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	90			R-20	17 26 50-5"	133	10	SP-SM	@90': Poorly graded SAND with SILT, very dense, olive brown, slightly moist, fine sand, some silt laminations	
									Total Depth of Boring: 91.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-9-2020.	
	95									
	100									
	105									
	110									
	115									
	120									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-LB-5

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
	0			BB-1				SP	**Artificial Fill certified (Afc):** @0': SAND, loose, sparse vegetation, fine to coarse sand, windblown silt, rodent burrows, trace granitic cobble	
								SMg	@2': SILTY SAND with GRAVEL, dark brown, moist, fine grained, fine to coarse gravel, asphalt concrete fragments, clay pods	
	5			R-1	12 23 40	117	7			
								SP	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @6': SAND, dense, olive brown, moist, very fine grained, mild reaction with HCl	
				R-2	5 11 15	108	5	SP-SM	@7': Poorly graded SAND with SILT, medium dense, olive brown, moist, very fine grained, strong carbonate reaction with HCl	
	10			R-3	3 4 7	100	13		@10': Thinly bedded, loose, olive brown, very moist to wet, oxidized, abrupt contact over SAND bed, fine to medium grained, micaceous	
				R-4	4 8 11	108	2	MLs	@12': SANDY SILT, stiff, olive brown, moist, very fine sand, micaceous, thin coarse sand laminations	
	15			R-5	3 4 7	102	8	SP-SM	@15': SAND with SILT, loose, olive brown, moist, micaceous	
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-12-2020.	
	20									
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG 2020-LB-6

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	JAR
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	JAR

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SP	**Artificial Fill certified (Afc):** @0': Loose to hard pack SAND, with gravel, olive brown, fine to medium grained sand, fine to coarse subrounded to angular asphalt concrete fragments, rodent burrows	
	5			BB-1 S-1	7 18 27			SPg	@5' to 6': GRAVELLY SAND, dense	
									Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas	
				S-2	4 8 11			SP-SM CL SP CL	@6': SAND with SILT, olive brown, oxidized near base of contact above with fill, very fine grained sand, poorly graded @7': Graded down to thin bedded CLAYEY SILT laminations, react strongly with HCl, clay olive brown to reddish brown, very moist	
	10			S-3	3 4 5		3	SP-SM	@10': Poorly graded SAND with SILT, medium dense, olive brown	
				S-4	3 3 4		8	CL	@12': CLAY, stiff, olive brown to reddish brown, mottled grayish white to reddish brown along parting surfaces, moderately plastic, strong reaction with HCl	
	15			S-5	2 3 4		4	SP-SM	@15': Poorly graded SAND with SILT, loose, slightly moist	
	20			R-1	7 15 22	112	3	SP	@20': SAND, dense, olive brown to grey brown, moist, medium grained sand, few coarse sand laminations	
									Total Depth of Boring: 21.5 feet Groundwater not encountered during drilling Boring backfilled with soil cuttings and tamped upon completion of drilling on 10-12-2020.	
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-1

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0							SM	**Artificial Fill certified(Afc):** @0': Poorly graded SILTY SAND, loose near surface, grayish brown, slightly moist, fine sand, few gravel, with rodent burrows	
	5			R-1	15 26 36	125	4		@5': dense, dark grayish brown, slightly moist, fine sand, few coarse sand and gravel	
								SP	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas**	
	10			R-2	2 4 4	95	4	SM	@10': Poorly graded SILTY SAND, loose, light brownish gray, slightly moist, very fine to fine sand, micaceous, **0% GR: 76% SA: 24% FI**	SA
	15			R-3	4 6 10	109	3	SP-SM	@15': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine to medium sand, some mica	
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 5 feet to 15 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	20									
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-2

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				SP-SM	**Artificial Fill certified(Afc):** @0': Poorly graded SAND with SILT, loose near surface, olive brown, slightly moist, fine sand, few gravel, some rodent burrowing	CR, EI, MD, RV
	5			R-1	10 30 50-6"	121	5		@5': very dense, olive brown, slightly moist, fine sand, some gravel	
									Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas	
	10			R-2	7 12 13	107	3	SP-SM	@10': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine sand, some interbedded silt	
	15			R-3	4 6 9	99	5		@15': medium dense, grayish brown, slightly moist, very fine to fine sand, some mica	
	20			R-4	7 12 17	111	3		@20': medium dense, light brownish gray, slightly moist, fine to medium sand, micaceous	
	25			S-5	3 4 5		13		@25': Poorly graded SAND with SILT, medium dense, grayish brown, moist, fine sand, micaceous	
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-2

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			R-6	13 21 28	112	4	SP-SM	@30': Poorly graded SAND with SILT, dense, light brownish gray, moist, fine to medium sand, **0% GR: 88% SA: 12% FI**	SA
	35			S-7	4 9 10		4		@35': medium dense, light brownish gray, slightly moist, fine to medium sand	
	40			R-8	13 41 50-4"	111	3		@40': very dense, light gray, slightly moist, fine sand, some mica	
	45			S-9	8 15 15		3		@45': medium dense, light brownish gray, slightly moist, fine sand, **0% GR: 93% SA: 7% FI**	SA
	50			R-10	14 21 39				@50': dense, light brownish gray, slightly moist, fine sand, some mica	
									Total Depth of Boring: 51.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 30 feet to 50 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	55									
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-3

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1				SP-SM	**Artificial Fill certified(Afc):** @0': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine sand, few gravel	
	5			R-1	10 15 16	112	3	SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @5': Poorly graded SILTY SAND, medium dense, light brownish gray, moist, fine to medium sand, some mica, **0% GR: 84% SA: 16% FI**	SA
	10			R-2	3 6 8	110	3		@10': medium dense, grayish brown, moist, very fine to fine sand, some mica	
	15			R-3	5 10 15	106	3	SP-SM	@15': Poorly graded SAND with SILT, medium dense, light brownish gray, slightly moist, fine sand, few interbedded silt laminations, **0% GR: 92% SA: 8% FI**	SA
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 5 feet to 15 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	20									
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-4

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0							SP-SM	**Artificial Fill certified(Afc):** @0': Poorly graded SAND with SILT, medium dense, grayish brown, slightly moist, fine sand	
	5			R-1	2 4 6	96	3	SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @5': Poorly graded SILTY SAND, loose, light brownish gray, slightly moist, fine sand, some mica, **0% GR: 82% SA: 18% FI**	SA
	10			R-2	3 5 7	98	4	SP	@10': Poorly graded SAND, medium dense, light brownish gray, slightly moist, fine sand	
	15			R-3	7 13 19	107	1		@15': medium dense, light gray, dry, fine to medium sand	
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 5 feet to 15 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	20									
	25									
	30									

SAMPLE TYPES:
B BULK SAMPLE
C CORE SAMPLE
G GRAB SAMPLE
R RING SAMPLE
S SPLIT SPOON SAMPLE
T TUBE SAMPLE

TYPE OF TESTS:
-200 % FINES PASSING
AL ATTERBERG LIMITS
CN CONSOLIDATION
CO COLLAPSE
CR CORROSION
CU UNDRAINED TRIAXIAL
DS DIRECT SHEAR
EI EXPANSION INDEX
H HYDROMETER
MD MAXIMUM DENSITY
PP POCKET PENETROMETER
RV R VALUE
SA SIEVE ANALYSIS
SE SAND EQUIVALENT
SG SPECIFIC GRAVITY
UC UNCONFINED COMPRESSIVE STRENGTH

*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

GEOTECHNICAL BORING LOG 2020-P-5

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SP-SM	**<u>Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas</u>** @0': Poorly graded SAND with SILT, medium dense, light brownish gray, dry, fine sand, trace silt	
	5			R-1	3 6 9		101		@5': medium dense, grayish brown, dry, fine sand, micaceous, some interbedded silt, carbonated	
	10			R-2	4 7 10		96	SP	@10': Poorly graded SAND, medium dense, light olive brown, dry, fine sand, with a 1-inch silt bed	
	15			R-3	3 6 9		87	SP-SM	@15': Poorly graded SAND with SILT, medium dense, light brownish gray, dry, fine sand, with thinly interbedded silt and clay laminations, **0% GR: 90% SA: 10% FI**	SA
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 5 feet to 15 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	20									
	25									
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG 2020-P-6

Project No.	12915.001	**Date Drilled**	10-12-20
Project	Riverside Arena	**Logged By**	BSS
Drilling Co.	Martini Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	See Plate 1 - *Exploration Location Map*	**Sampled By**	BSS

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0							SP	**Artificial Fill certified(Afc):** @0': Poorly graded SAND, medium dense, grayish brown, slightly moist, fine sand	CR, EI, MD, RV
	5			R-1 B-1	4 6 9	100 104	6 1	SP-SM	**Quaternary Alluvium (Qal): Alluvial sand and gravel of valley areas** @5': Poorly graded SAND with SILT, medium dense, light brownish gray, dry, fine sand, some silt beds with carbonate	
	10			R-2	5 10 14	101	1		@10': medium dense, light brownish gray, dry, fine to medium sand, **0% GR: 90% SA: 10% FI**	SA
	15			R-3	10 17 25				@15': dense, light gray, dry, fine to medium sand, friable (sample disturbed)	
									Total Depth of Boring: 16.5 feet Groundwater not encountered during drilling Installed 2-inch diameter monitoring well. Slotted 0.020-inch screen from 5 feet to 15 feet bgs. Annulus backfilled with No. 3 Monterey Sand.	
	20									
	25									
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

APPENDIX A-2

Field Exploration Logs
(Previous Studies ESS 2004)

Leighton

Earth Systems
Southwest

79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1558, Fax (760) 345-7315

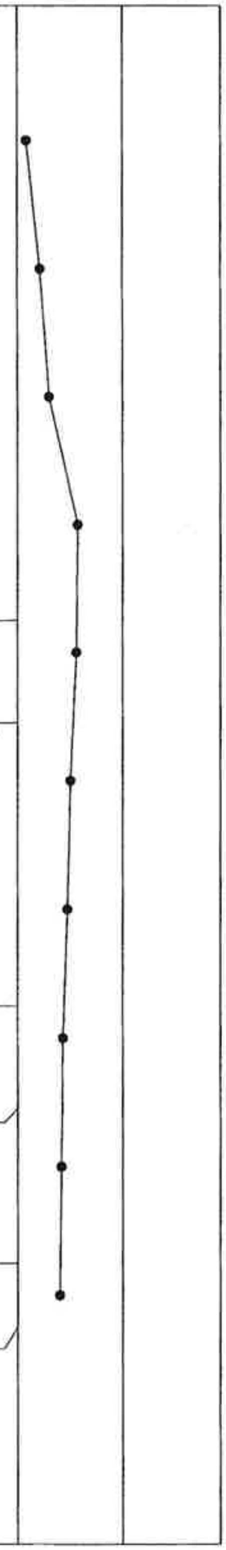
Boring No: B-6	Drilling Date: December 30, 2003
Project Name: World Trade Center Resort and University, Palm Desert, CA	Drilling Method: 8" inch hollow stem auger
File Number: 09471-01	Drill Type: CME 45 w/rope & cathead
Boring Location: See Figure 2	Logged By: Rahul Kowli

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0	Bulk (0–4.5)		SP-SM			SAND WITH SILT: light brown, loose, damp, fine to medium grained, some silt
5	MOD Calif.	4,4,5		98	2	
10	MOD Calif.	5,7,9		105	2	loose to medium dense
15	MOD Calif.	7,13,19		101	2	medium dense, some clayey silt at 16 feet
20	MOD Calif.	17,25,35		110	1	medium dense to dense, fine grained, some medium grained, some silt
25	SPT	11,18,21	SM			SILTY SAND: grayish brown, medium dense, damp, fine grained with silt
30	SPT	11,14,21	SP-SM			SAND WITH SILT: light brown, medium dense, dry, fine grained, some silt
35	SPT	9,14,19				very little sample recovery
40	SPT	9,13,17	SM			SILTY SAND: grayish brown, medium dense, dry to damp, fine grained, some fine to medium grained clean sand at 40 feet
45	SPT	13,14,15	SM/ML			SILTY SAND TO SANDY SILT: light brown to grayish brown, medium dense, dry to damp, fine grained
50	SPT	8,12,16	ML			SILT: grayish brown, medium dense, dry to damp, some fine grained
55						Boring completed at 51.5 feet No groundwater encountered No caving
60						

Graphic Trend
Blow Count Dry Density



Earth Systems
Southwest

79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1558, Fax (760) 345-7315

Boring No: B-1

Project Name: World Trade Center Resort and University, Palm Desert, CA
File Number: 09471-01
Boring Location: See Figure 2

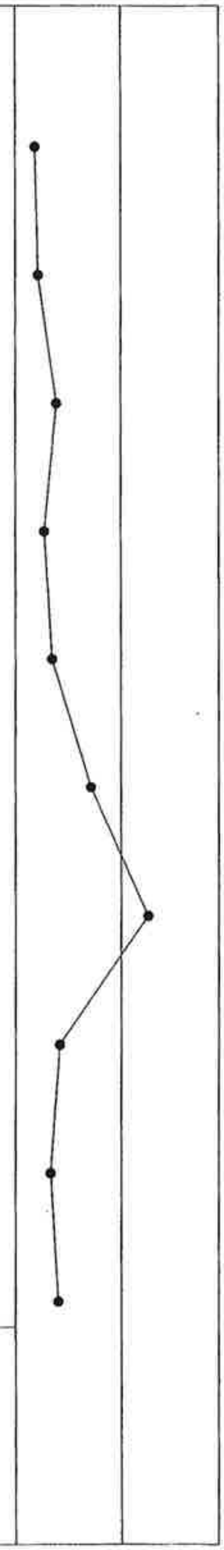
Drilling Date: December 23, 2003
Drilling Method: 8" inch hollow stem auger
Drill Type: CME 45 w/rope & cathead
Logged By: Boris Zaprianoff

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type: Bulk	Sample Type: SPT	Sample Type: MOD Calif.	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0						SP-SM			SAND WITH SILT: dusky yellow-light olive gray, medium dense, dry, fine to medium grained, some silty sand
5			■	5,9,11			105	1	
									dusky yellow, some silt lenses
10			■	7,10,12			105	1	
15			■	11,18,22			102	3	dusky yellow-light olive gray, dry to damp, trace silt and silt lenses
									dusky yellow to light olive gray, trace silt
20		■		8,9,10					
25			■	10,15,21			108	2	
30		■		15,21,29					dusky yellow
35		■		9,15,23					damp, some silt
40		■		9,13,16					trace silt
45		■		9,11,12					
50		■		11,13,15					light olive gray, fine sand with some silt, silt lenses
55									Boring completed at 51.5 feet No groundwater encountered No caving
60									

Graphic Trend
Blow Count Dry Density



Earth Systems
Southwest
79-811B Country Club Drive, Bermuda Dunes, CA 92201
Phone (760) 345-1558, Fax (760) 345-7315

Boring No: B-5
Project Name: World Trade Center Resort and University, Palm Desert, CA
File Number: 09471-01
Boring Location: See Figure 2

Drilling Date: December 30, 2003
Drilling Method: 8" inch hollow stem auger
Drill Type: CME 45 w/rope & cathead
Logged By: Rahul Kowli

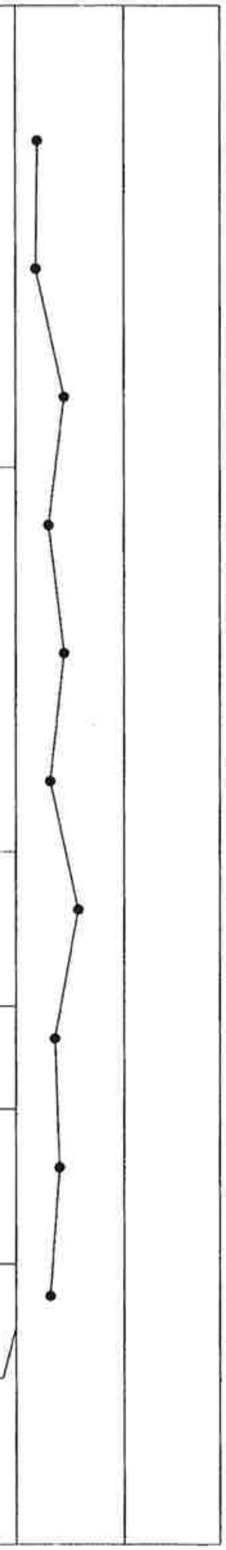
Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Depth (Ft.)	Sample Type (Bulk / SPT / MOD Calif.)	Penetration Resistance (Blows/6")	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0			SM/ML			SILTY SAND TO SAND SILT: grayish brown, medium dense, dry to damp, fine grained
5	Bulk, MOD Calif.	4,9,11		98	3	
10	MOD Calif.	6,8,11		89	5	
15	MOD Calif.	10,17,29		106	4	medium dense to dense
18			SP-SM			SAND WITH SILT: grayish brown, medium dense, dry to damp, fine grained, some silt
20	SPT	8,10,11				
25	SPT	9,14,17				some coarse grained, layers of clay at 25 feet
30	SPT	8,9,13				fine to medium grained, some silt
33			ML/CL			CLAYEY SILT: grayish brown, medium dense, to dense dry to damp, medium plasticity
35	SPT	14,17,23				
39			SP-SM			SAND WITH SILT: No Recovery
40	SPT	6,11,14				
43			SM/ML			SITLY SAND TO SANDY SILT: grayish brown, medium dense, damp, very fine grained
45	SPT	10,12,16				
49			SP-SM			SAND WITH SILT: light brown to grayish brown, medium dense, dry to damp, fine grained, some clayey silt at 50 feet
50	SPT	11,11,11				

Boring completed at 51.5 feet
No groundwater encountered
No caving

Graphic Trend
Blow Count Dry Density

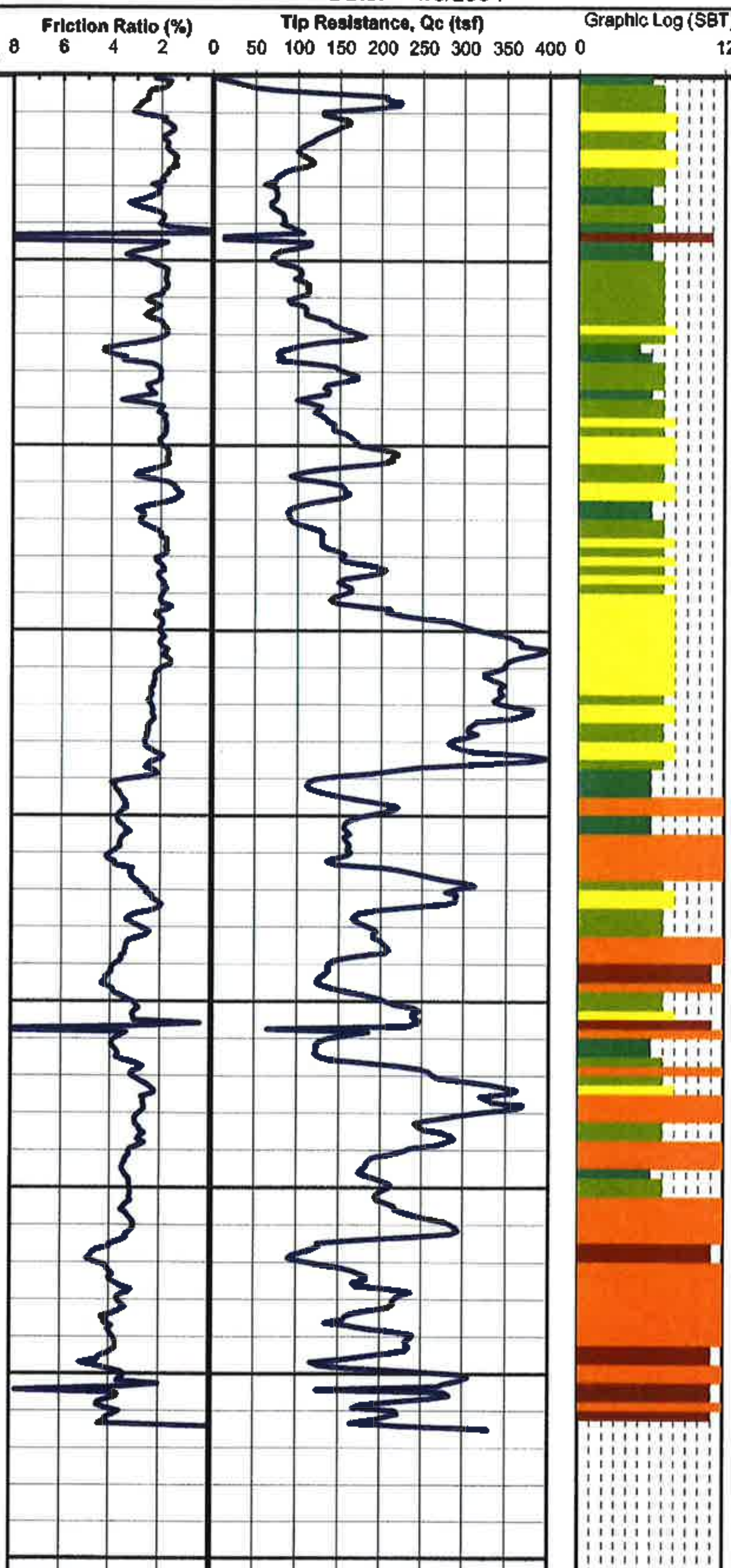


Earth Systems
Southwest

CPT No :	**CPT-4**
Project Name:	World Trade Center's Resort
Project No.:	09471-01
Location:	See Site Exploration Plan
Cone Penetrometer:	**Holguin Fahan & Associates** Truck Mounted Electric Cone with 23-ton reaction weight
Date:	1/5/2004

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Clayey Silt to Silty Clay	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sand to Clayey Sand	medium dense
Sandy Silt to Clayey Silt	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Overconsolidated Soil	medium dense
Sand to Clayey Sand	medium dense
Silty Sand to Sandy Silt	dense
Overconsolidated Soil	medium dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Overconsolidated Soil	hard
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense



End of Sounding @ 73.2 feet

Earth Systems
Southwest

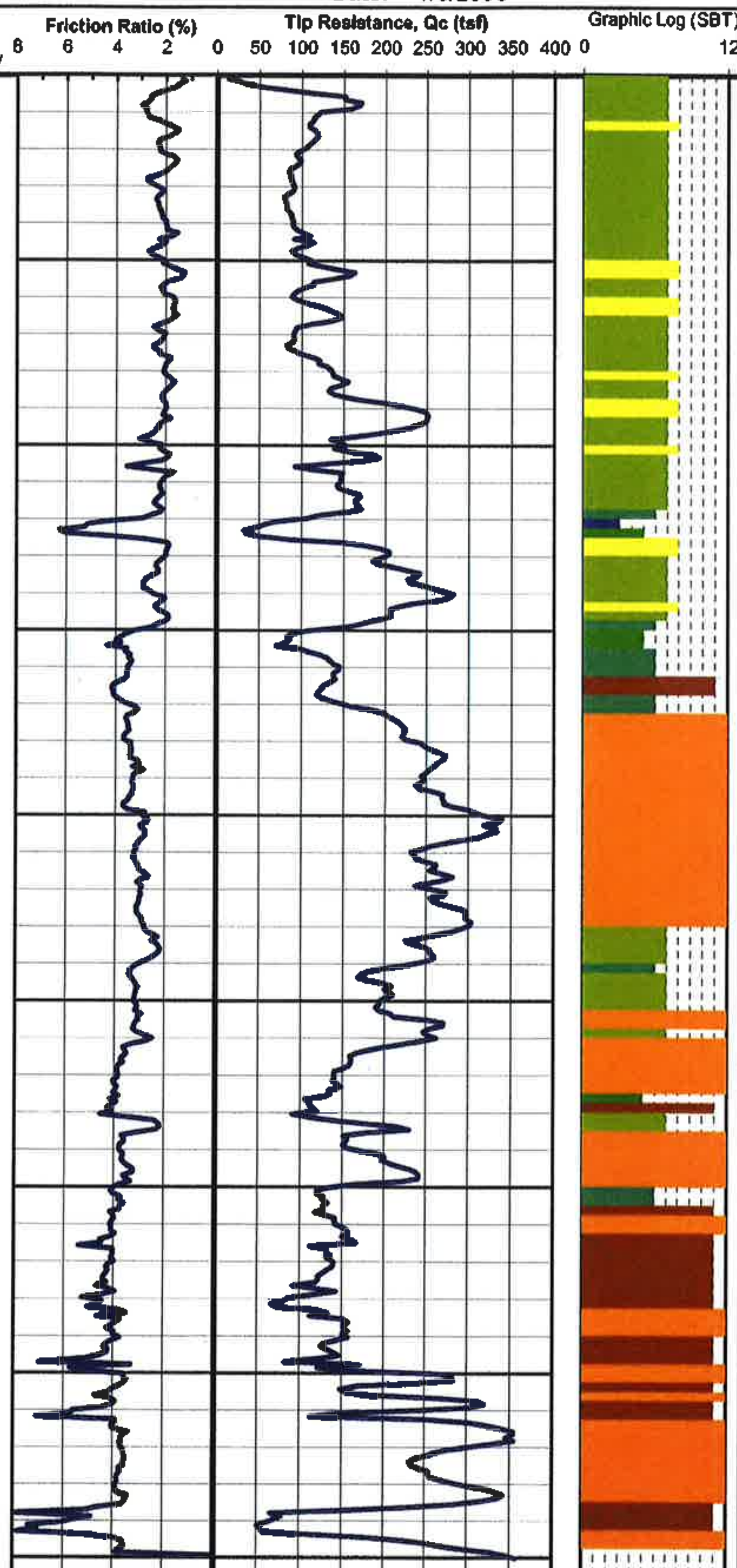
CPT No : CPT-14

Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)	Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	very dense
5	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	very dense
10	Silty Sand to Sandy Silt	dense
	Sand to Silty Sand	dense
	Silty Sand to Sandy Silt	dense
	Sand to Silty Sand	dense
	Silty Sand to Sandy Silt	dense
15	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
	Sand to Silty Sand	dense
	Sand to Silty Sand	very dense
	Sand to Silty Sand	very dense
20	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
25	Silty Clay to Clay	hard
	Sand to Silty Sand	dense
	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	very dense
	Sand to Silty Sand	dense
30	Silty Sand to Sandy Silt	dense
	Clayey Silt to Silty Clay	dense
	Sandy Silt to Clayey Silt	dense
	Sandy Silt to Clayey Silt	dense
	Sandy Silt to Clayey Silt	dense
35	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
40	Sand to Clayey Sand	dense
	Sand to Clayey Sand	dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
45	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	dense
	Silty Sand to Sandy Silt	very dense
	Silty Sand to Sandy Silt	very dense
	Sandy Silt to Clayey Silt	dense
50	Silty Sand to Sandy Silt	dense
	Silty Sand to Sandy Silt	dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
55	Sand to Clayey Sand	medium dense
	Overconsolidated Soil	medium dense
	Silty Sand to Sandy Silt	dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
60	Sand to Clayey Sand	medium dense
	Sandy Silt to Clayey Silt	medium dense
	Overconsolidated Soil	medium dense
	Overconsolidated Soil	medium dense
	Overconsolidated Soil	medium dense
65	Overconsolidated Soil	medium dense
	Overconsolidated Soil	hard
	Overconsolidated Soil	hard
	Sand to Clayey Sand	medium dense
	Overconsolidated Soil	hard
70	Overconsolidated Soil	medium dense
	Sand to Clayey Sand	medium dense
	Overconsolidated Soil	medium dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
75	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
	Sand to Clayey Sand	medium dense
	Overconsolidated Soil	hard
	Overconsolidated Soil	hard
80		

End of Sounding @ 80.2 feet



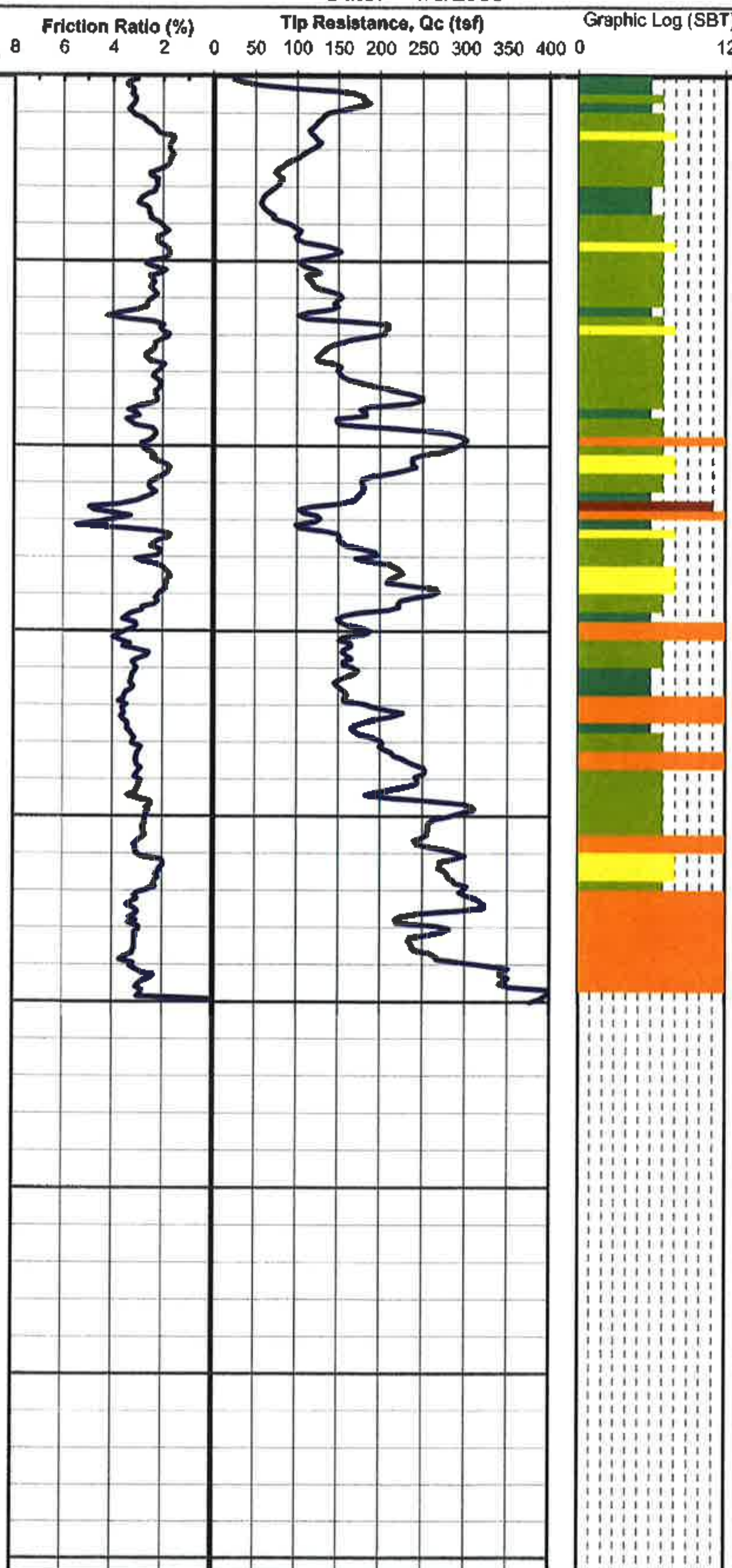
Earth Systems Southwest

CPT No : CPT-15
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Overconsolidated Soil	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sandy Silt to Clayey Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	medium dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense



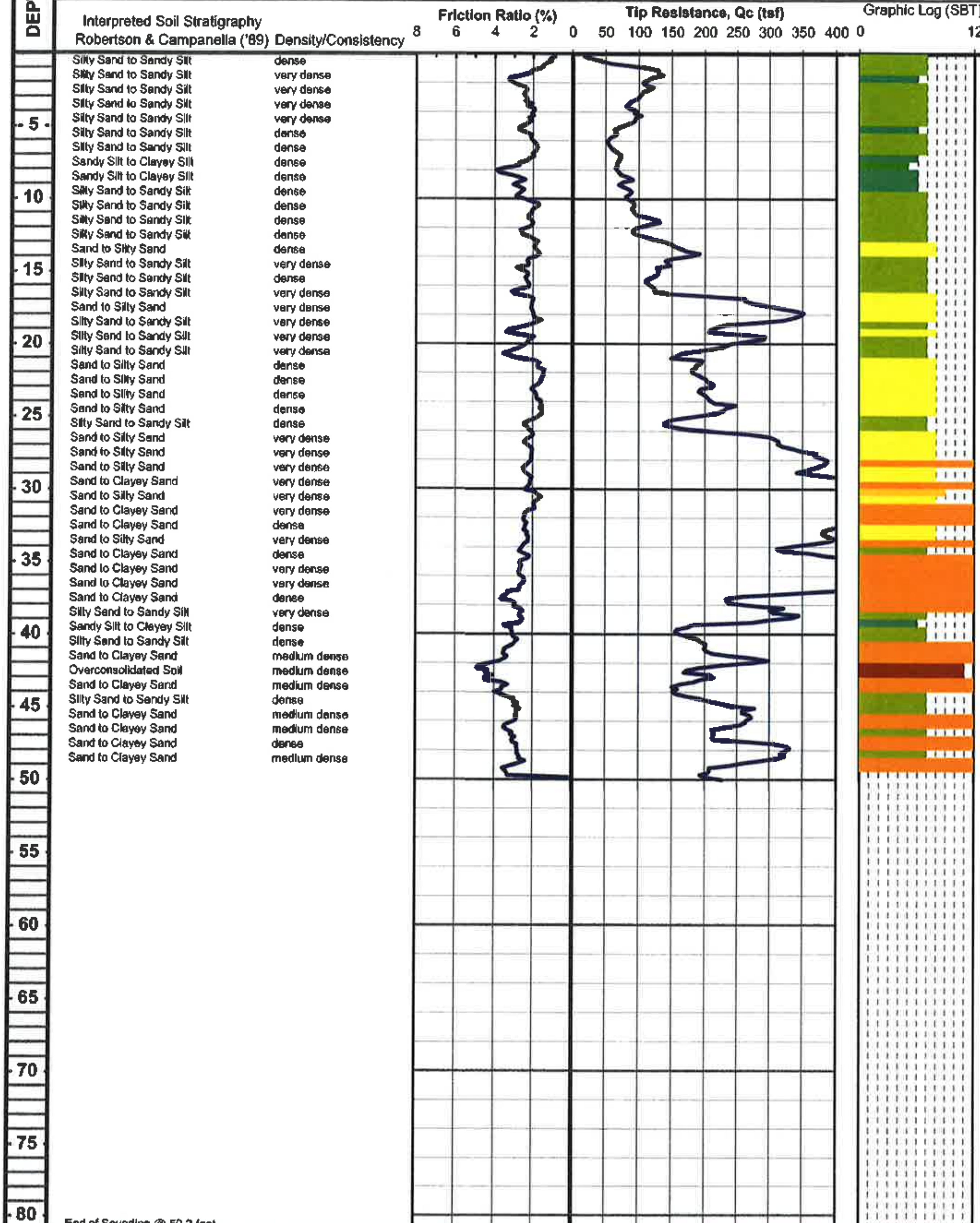
End of Sounding @ 50.2 feet

Earth Systems
Southwest

CPT No : CPT-18
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	very dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	very dense
Sand to Clayey Sand	very dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Overconsolidated Soil	medium dense
Sand to Clayey Sand	medium dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	medium dense



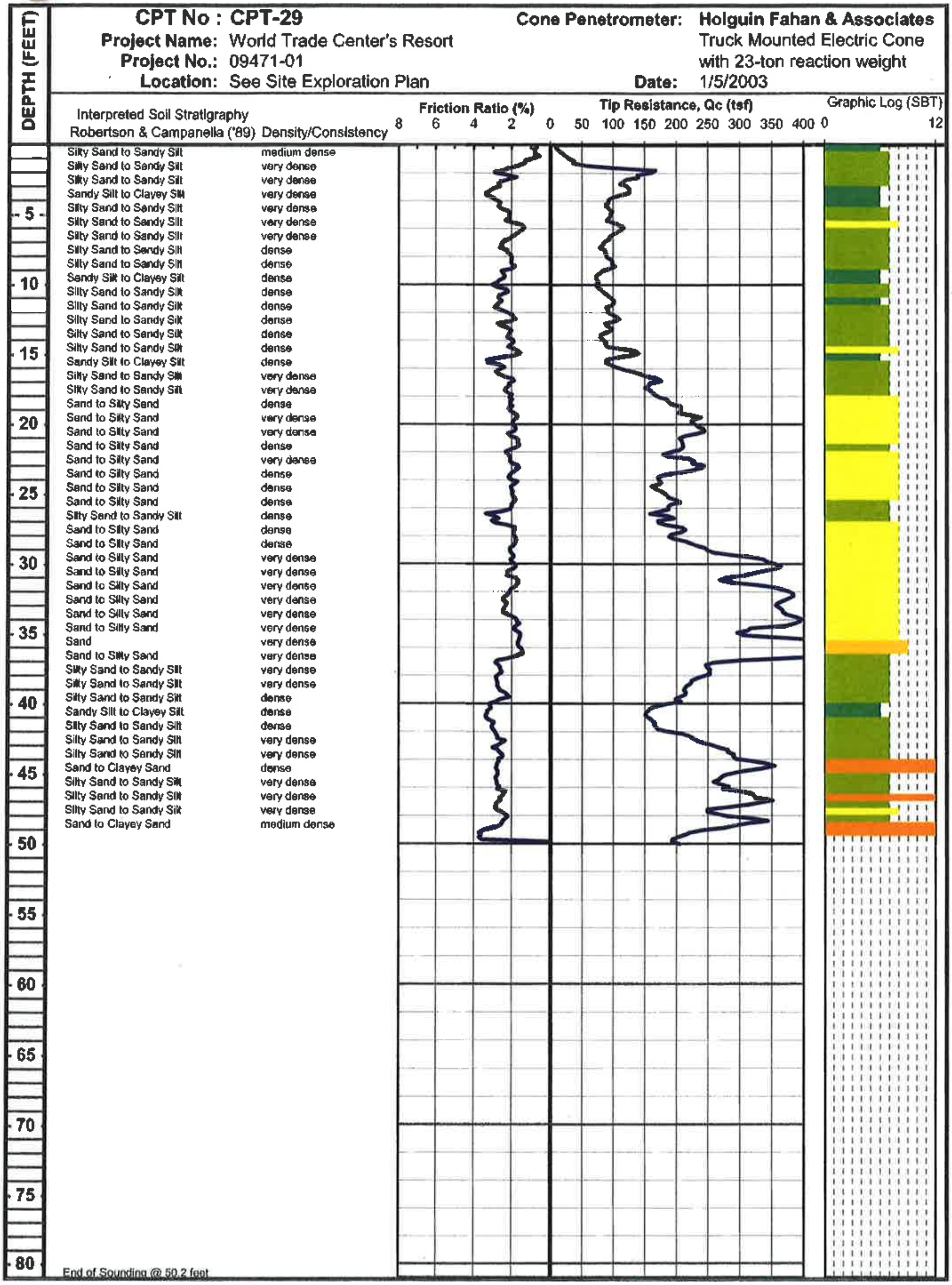
End of Sounding @ 50.2 feet

Earth Systems Southwest

CPT No : CPT-29
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	medium dense



End of Sounding @ 50.2 feet

Earth Systems
Southwest

CPT No : CPT-30

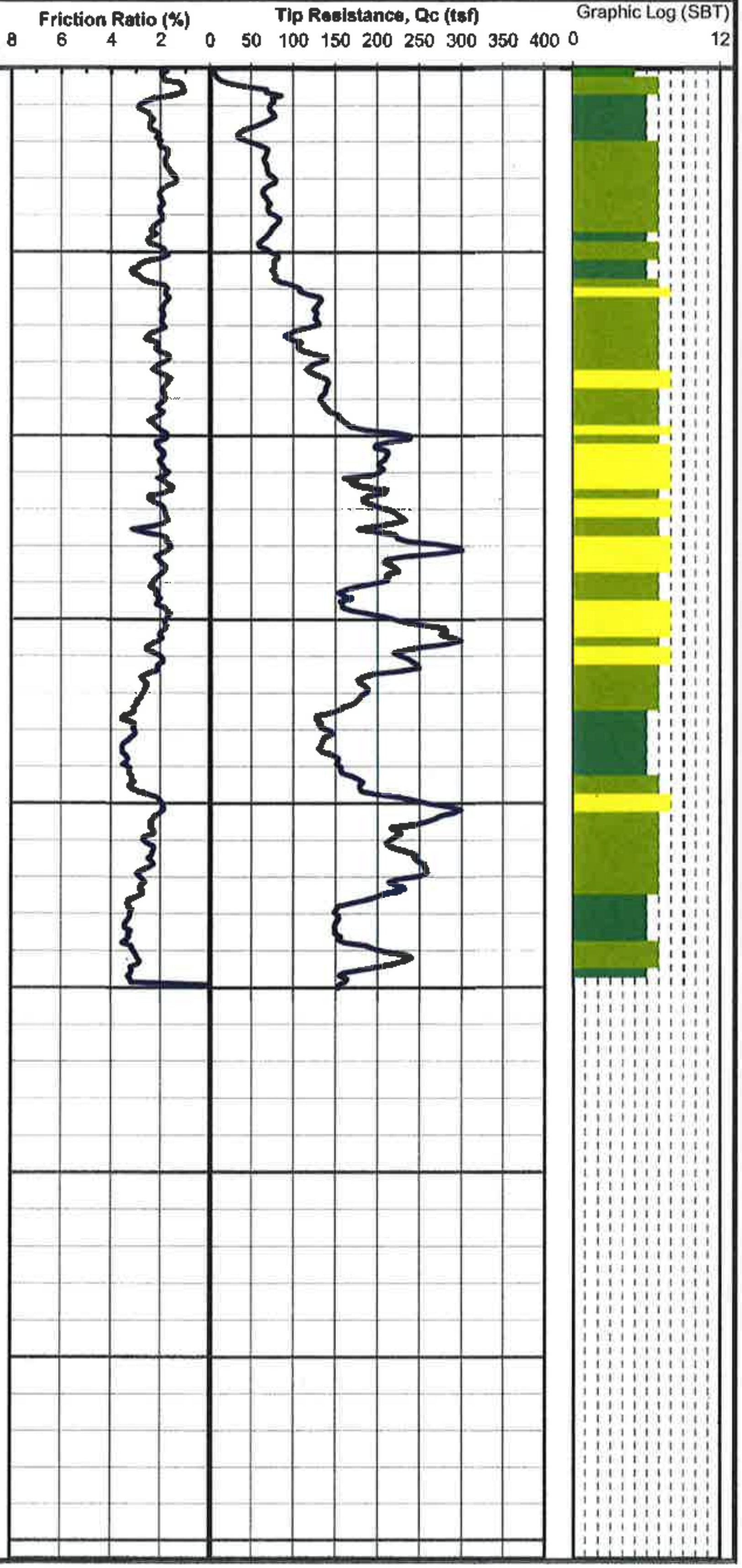
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense

5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80



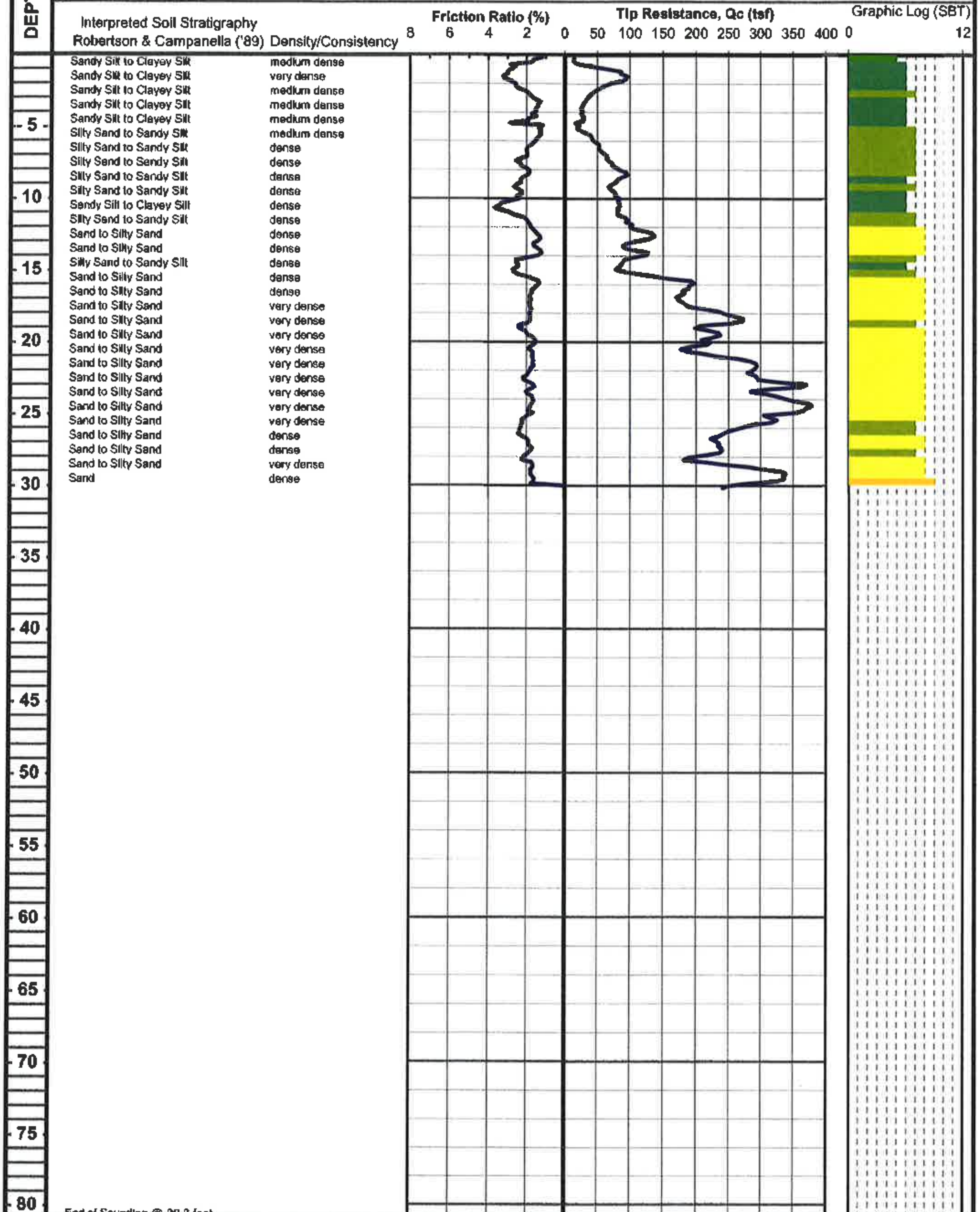
End of Sounding @ 50.2 feet

Earth Systems Southwest

CPT No : CPT-31
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand	dense



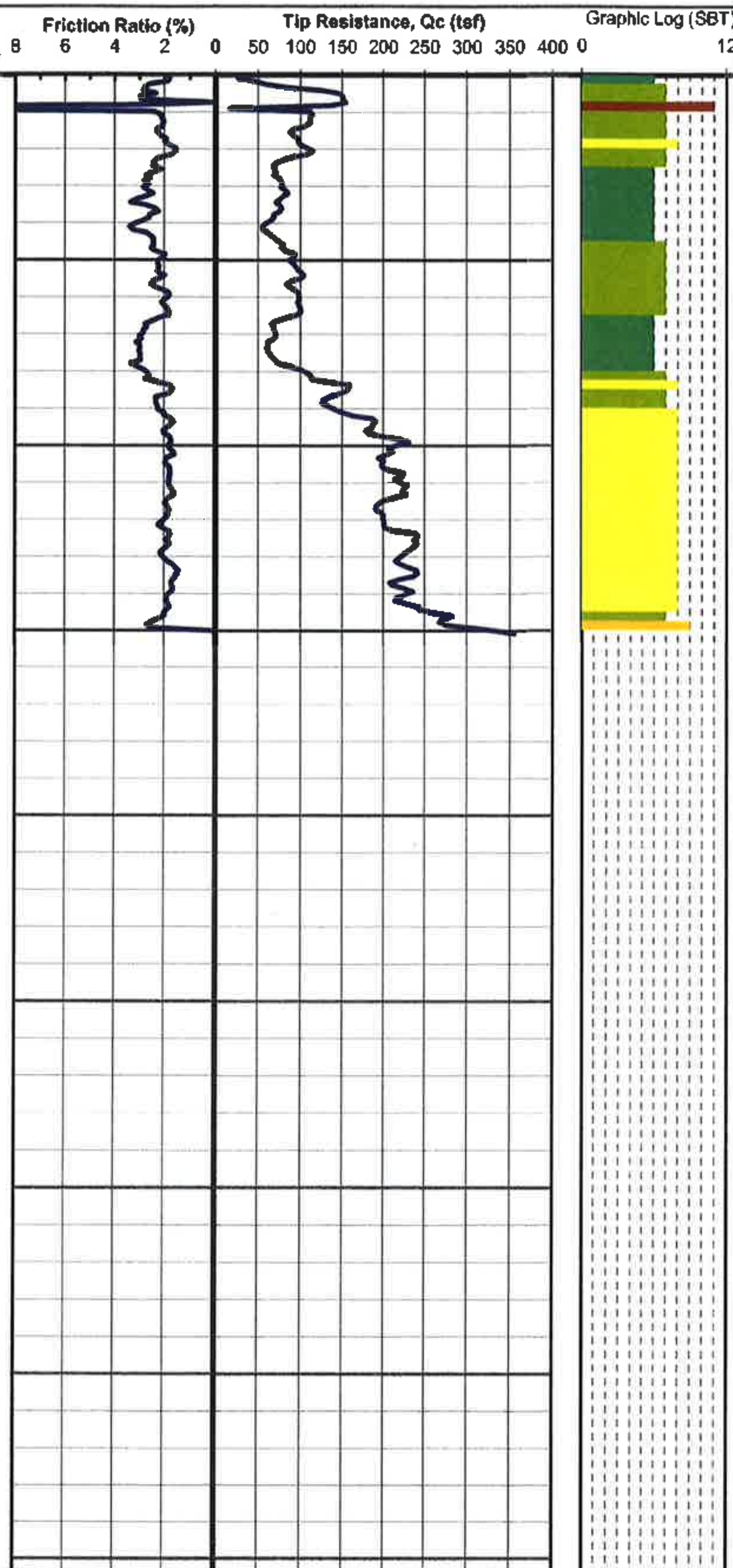
End of Sounding @ 30.3 feet

Earth Systems
Southwest

CPT No : CPT-32
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	very dense
Overconsolidated Soil	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense



End of Sounding @ 30.3 feet

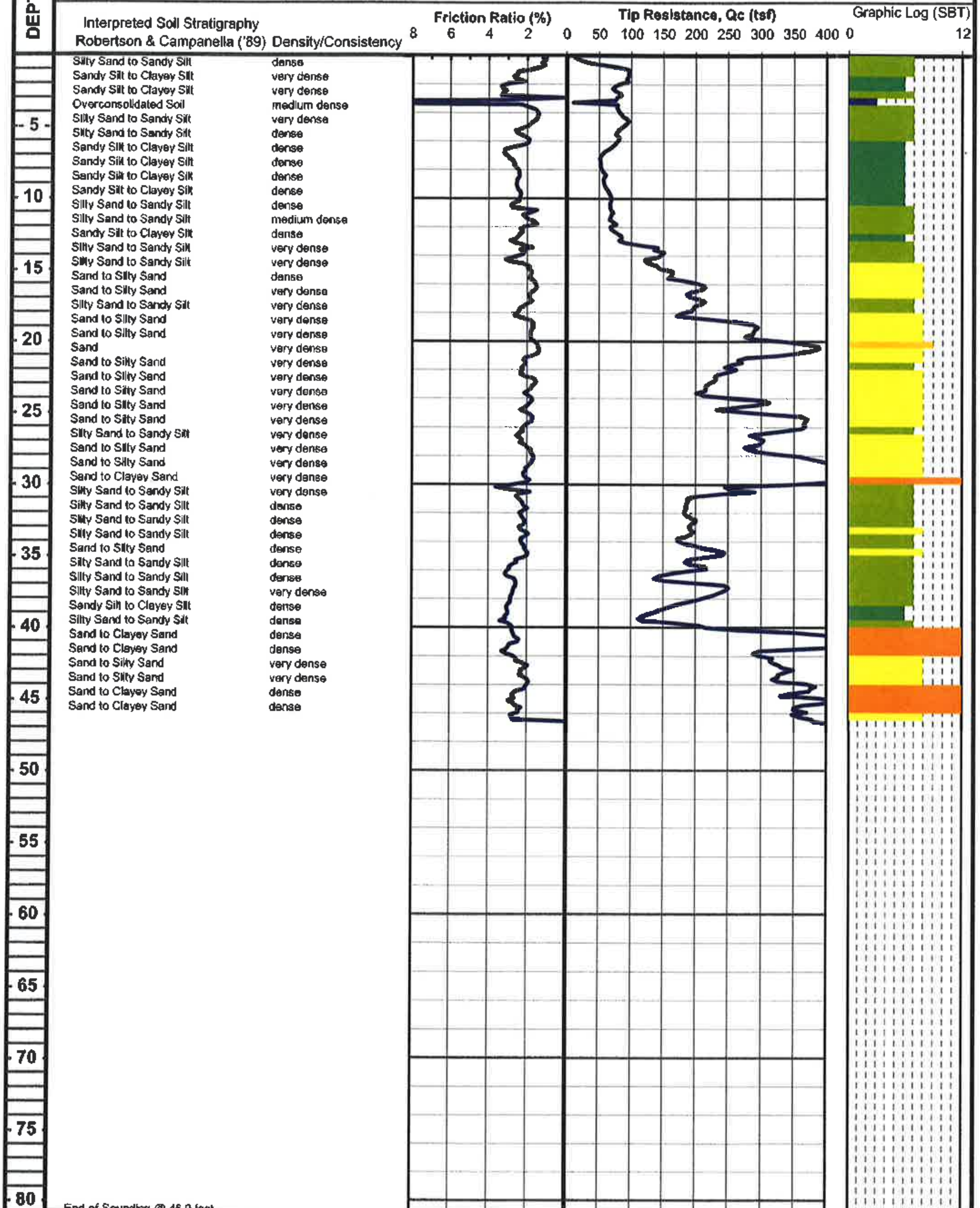
Earth Systems
Southwest

CPT No : CPT-33
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	very dense
Overconsolidated Soil	medium dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense



End of Sounding @ 46.9 feet

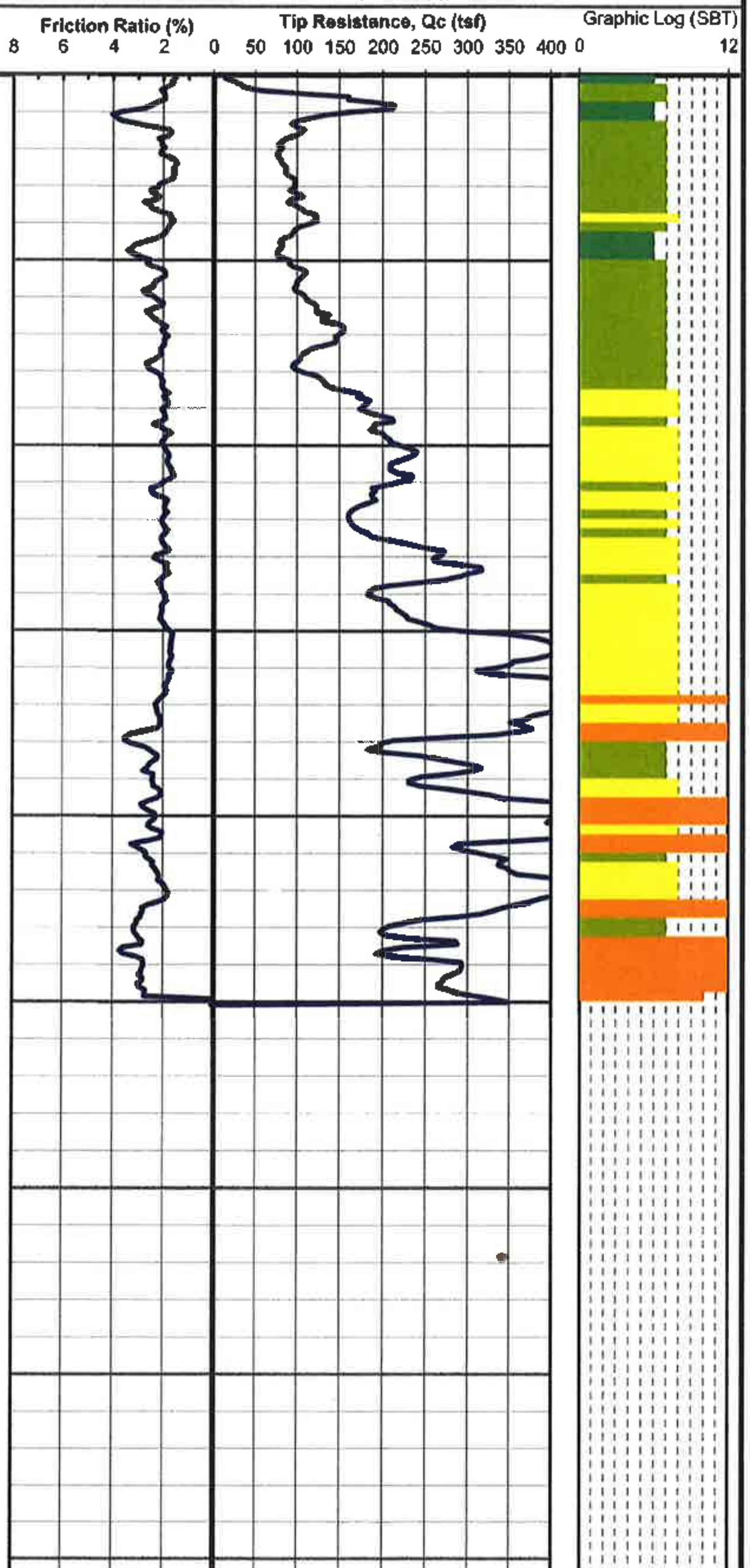
Earth Systems
Southwest

CPT No : CPT-34
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET): 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense
Sand	dense



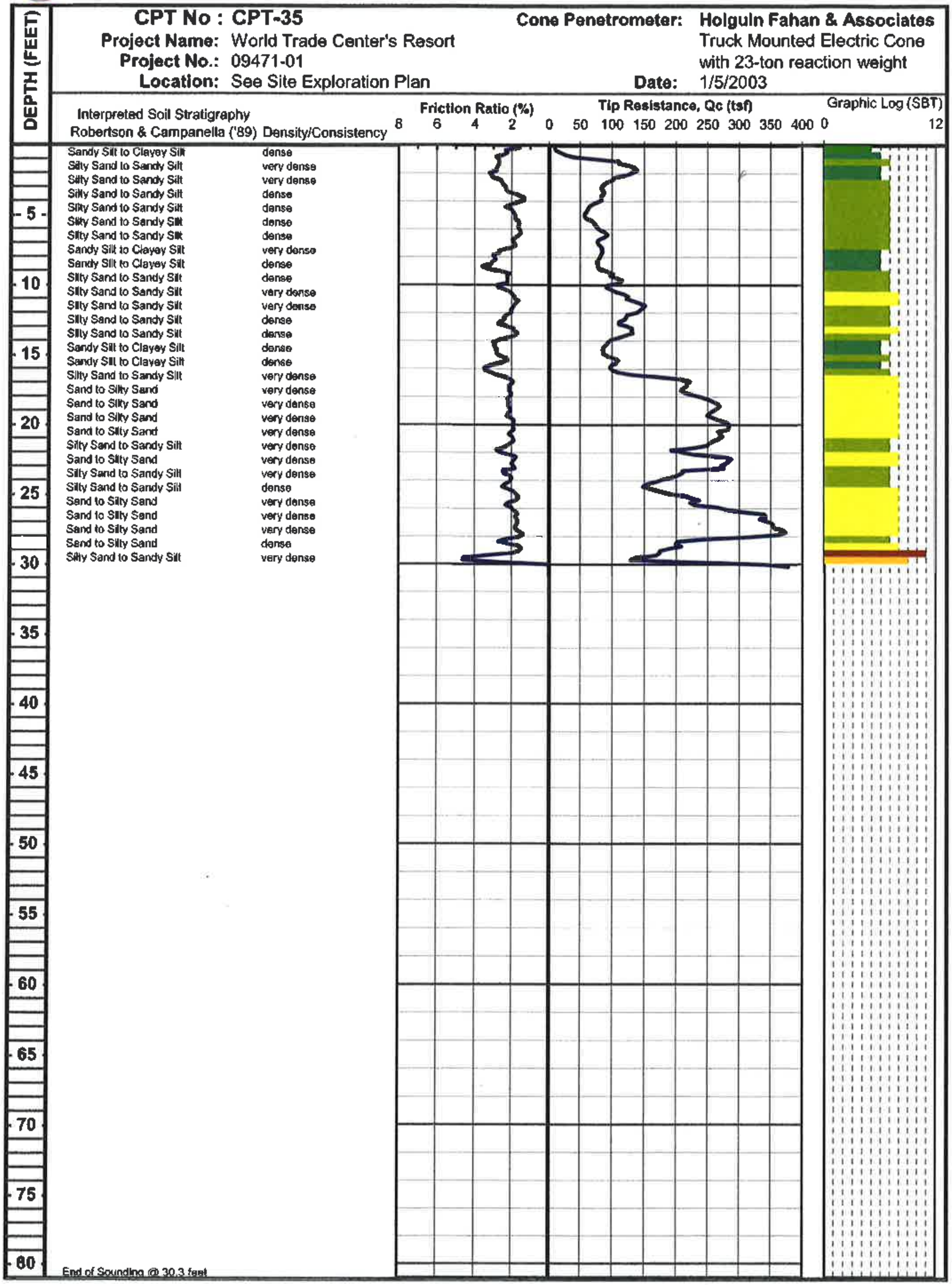
End of Sounding @ 50.4 feet

Earth Systems Southwest

CPT No : CPT-35
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense



End of Sounding @ 30.3 feet

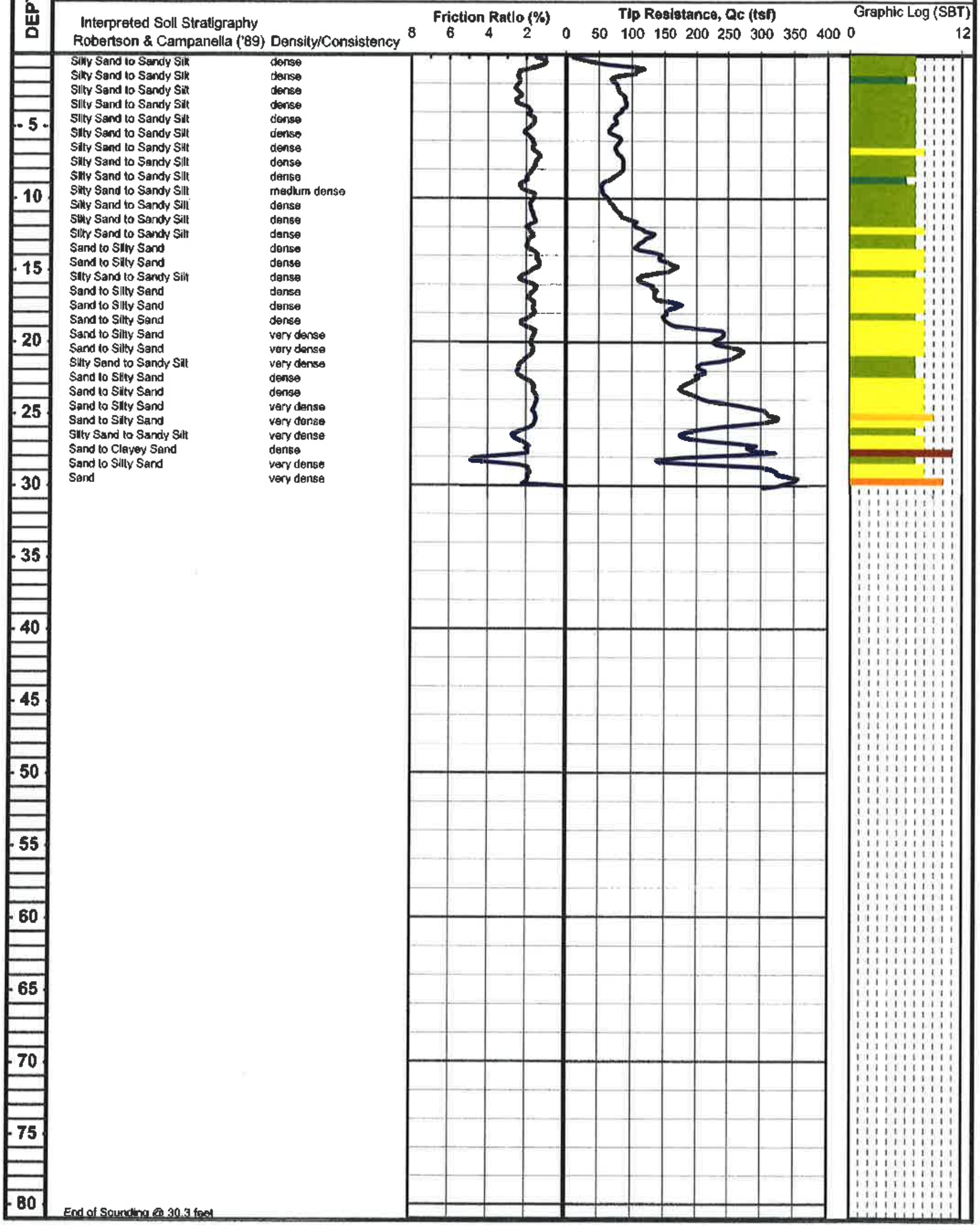
Earth Systems
Southwest

CPT No : CPT-36
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand	very dense



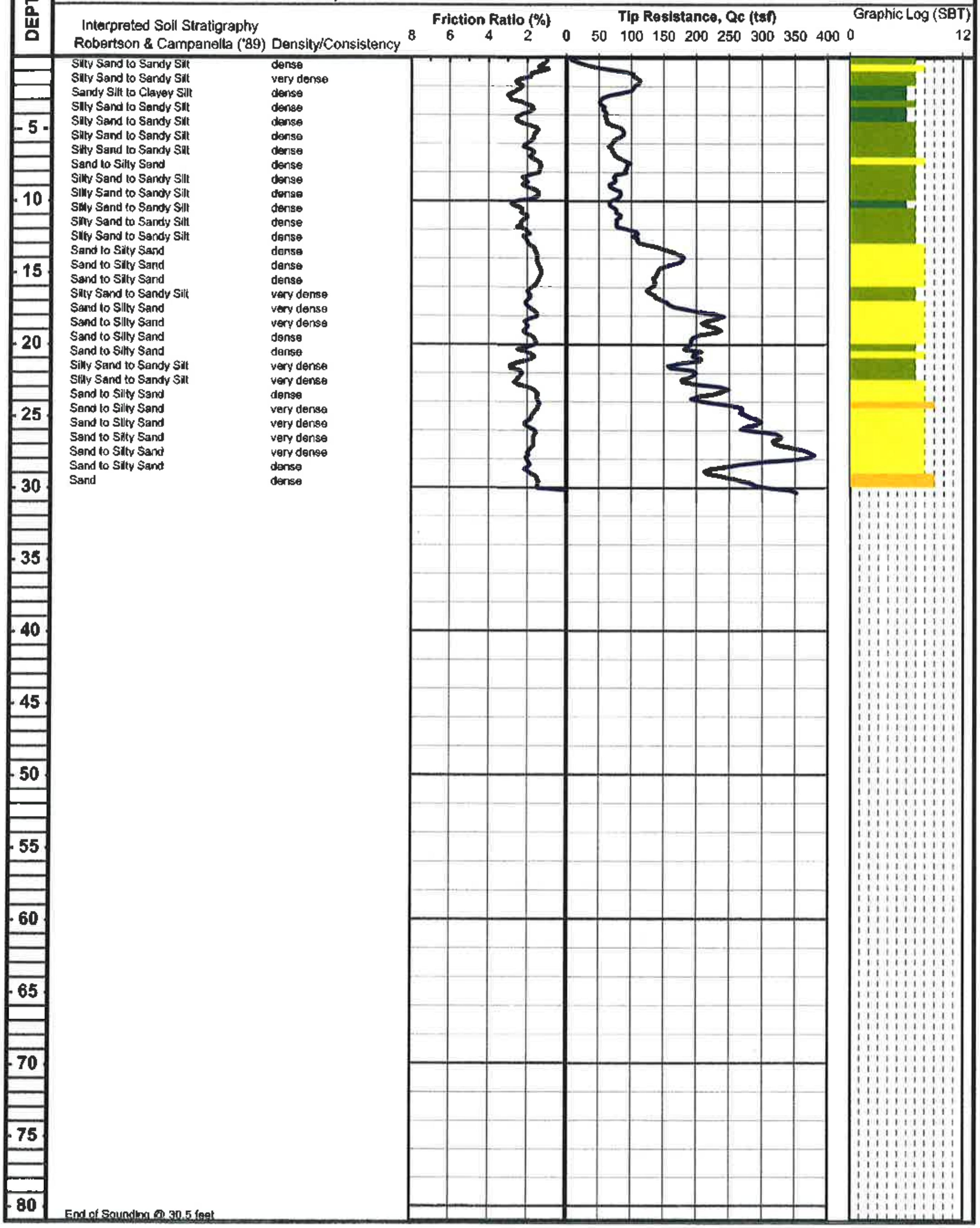
End of Sounding @ 30.3 feet

Earth Systems
Southwest

CPT No : CPT-37
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand	dense



End of Sounding @ 30.5 feet

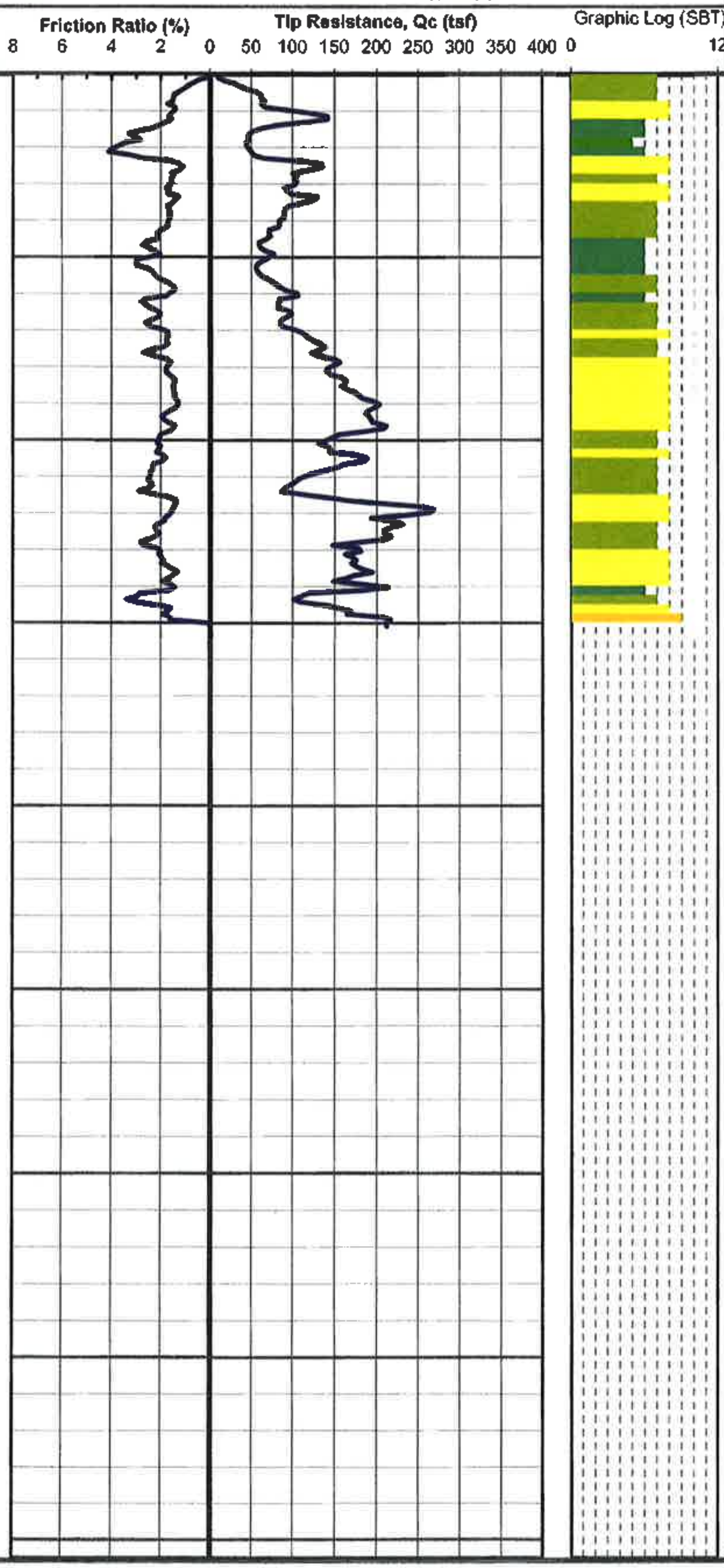
Earth Systems
Southwest

CPT No : CPT-38
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Clayey Silt to Silty Clay	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand	dense



End of Sounding @ 30.3 feet

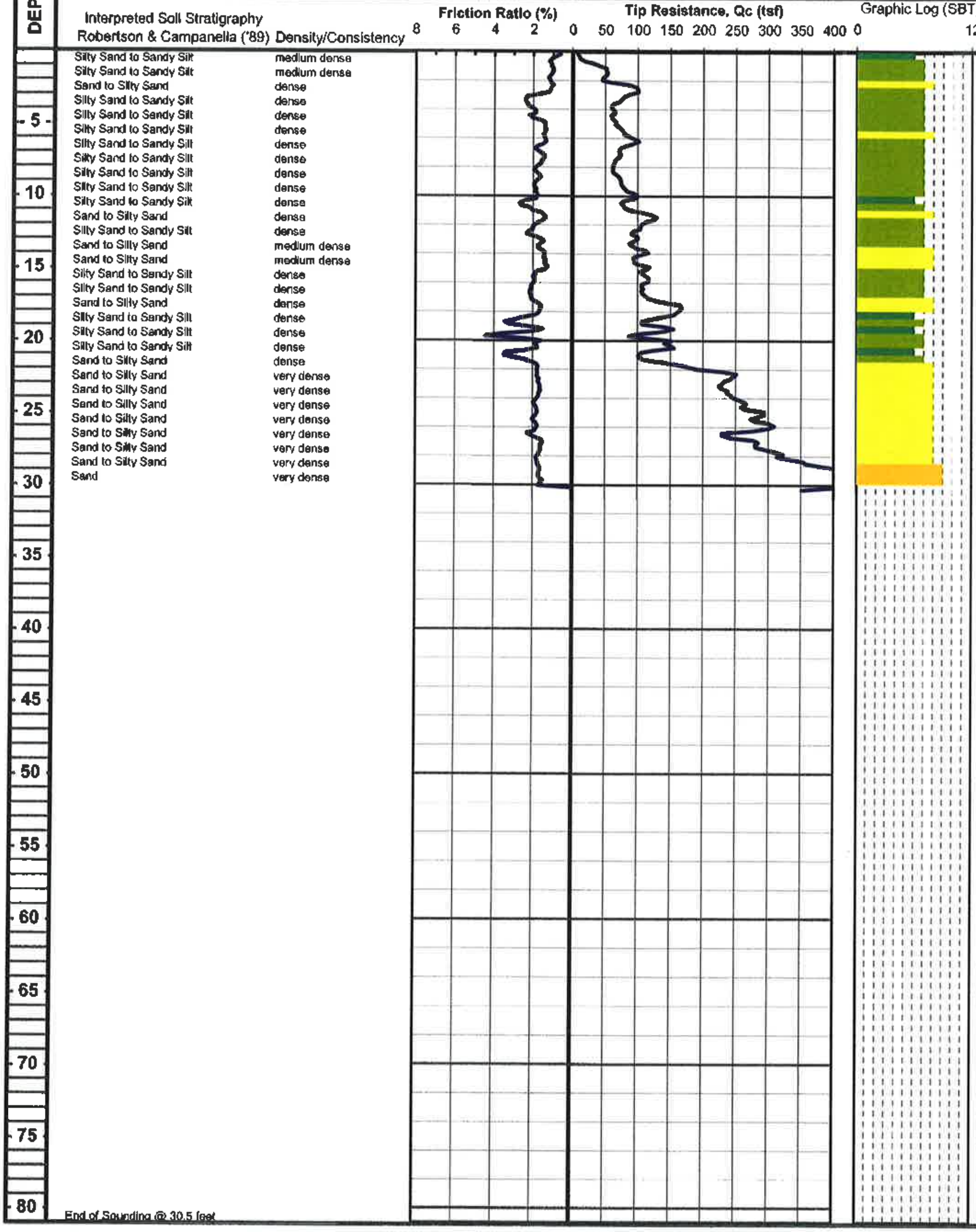
Earth Systems
Southwest

CPT No : CPT-39
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	medium dense
Sand to Silty Sand	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense

End of Sounding @ 30.5 feet



Earth Systems
Southwest

CPT No : CPT-40

Project Name: World Trade Center's Resort

Project No.: 09471-01

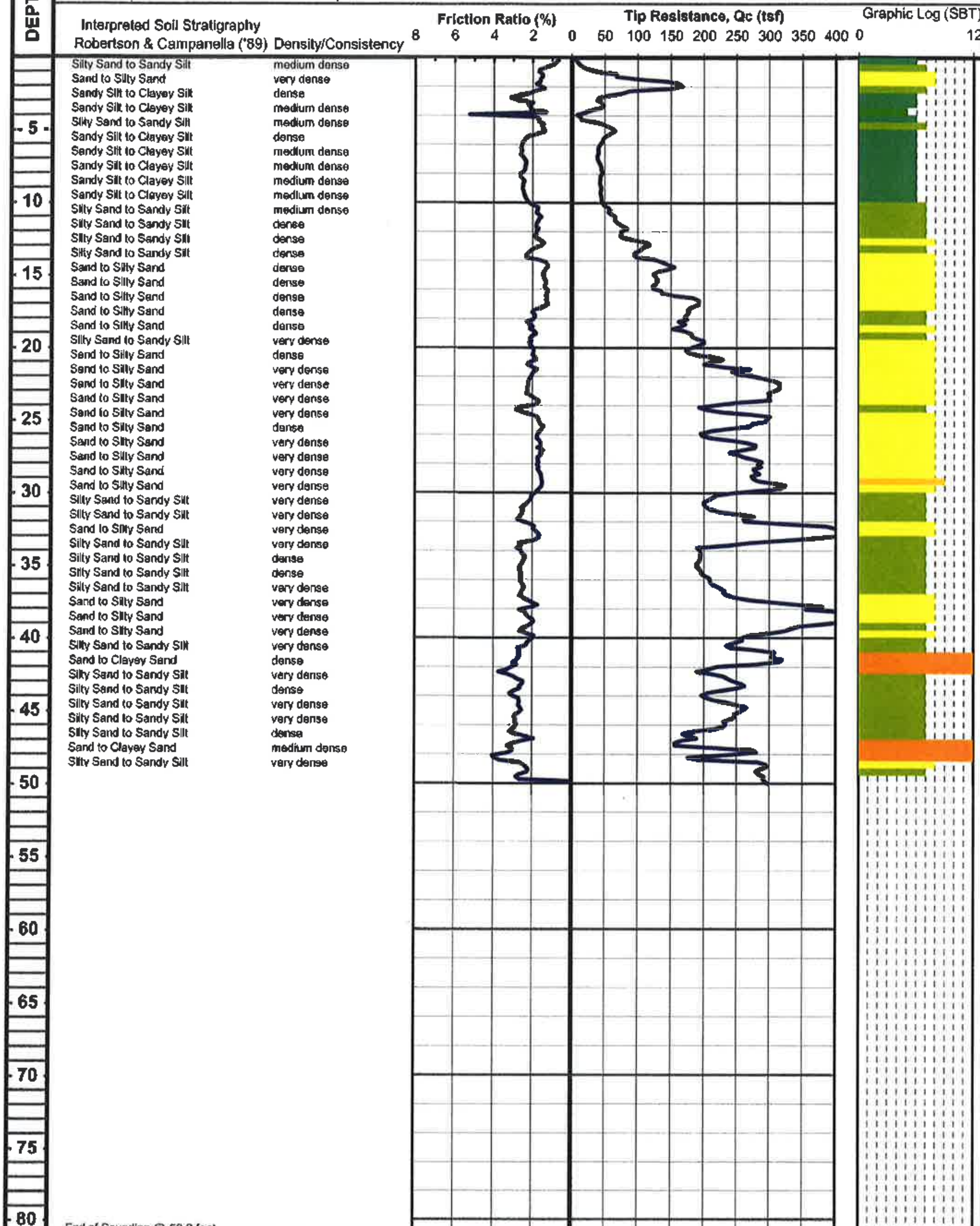
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight

Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Sand to Silty Sand	very dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Silty Sand to Sandy Silt	very dense



End of Sounding @ 50.2 feet

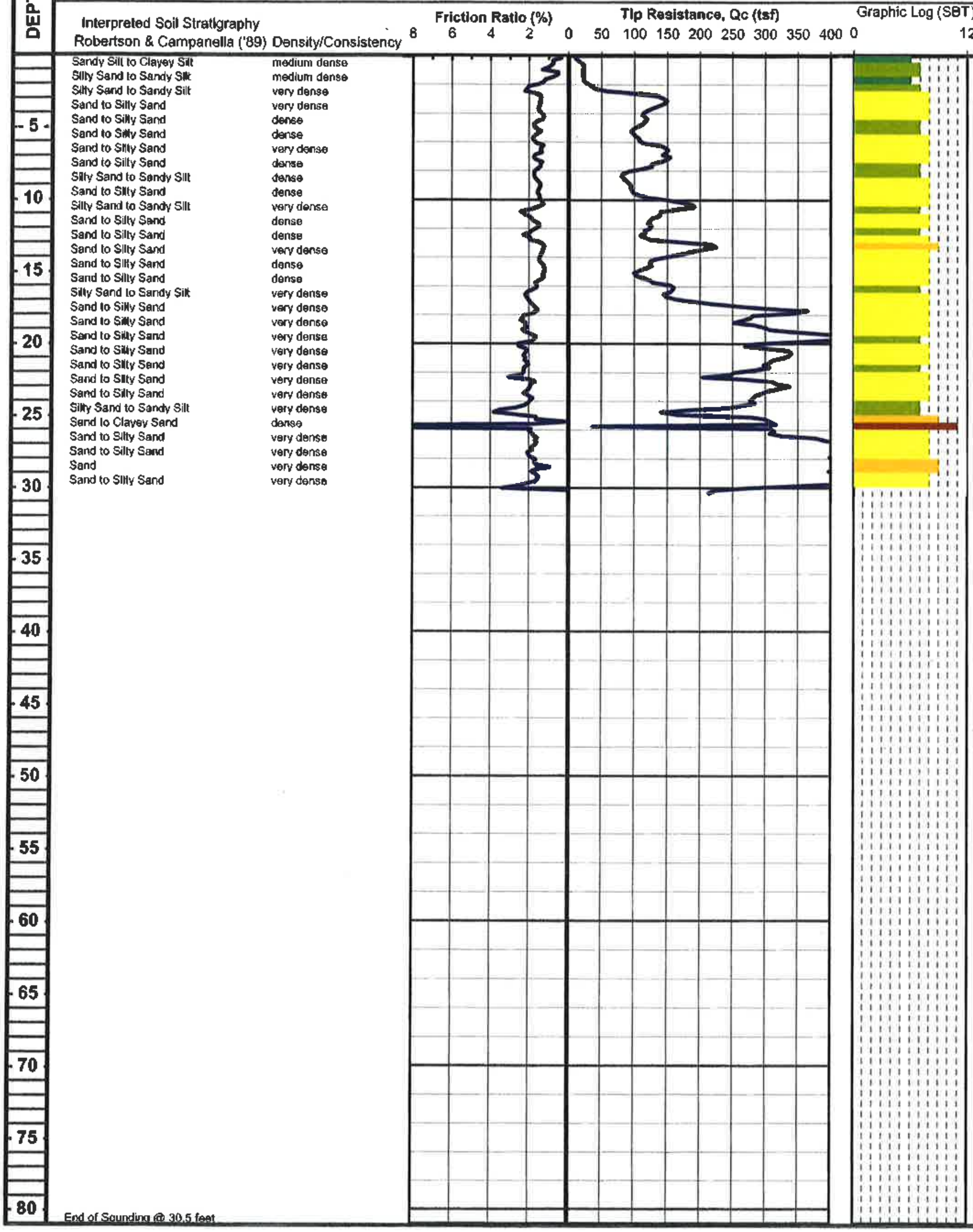
Earth Systems
Southwest

CPT No : CPT-41
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense



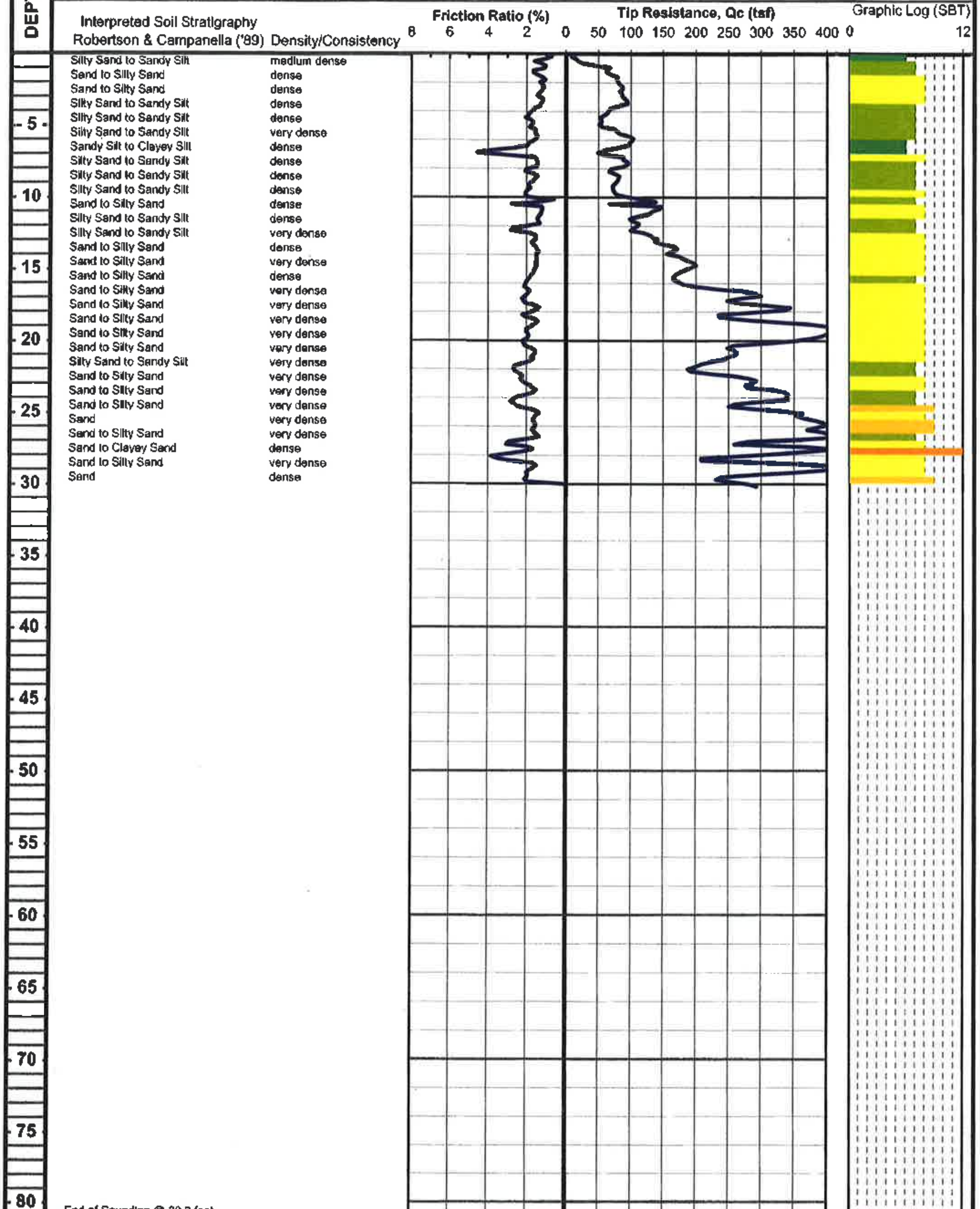
End of Sounding @ 30.5 feet

Earth Systems
Southwest

CPT No : CPT-42
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Sand to Silty Sand	very dense
Sand	dense



End of Sounding @ 30.3 feet

Earth Systems Southwest

CPT No : CPT-43

Project Name: World Trade Center's Resort

Project No.: 09471-01

Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates

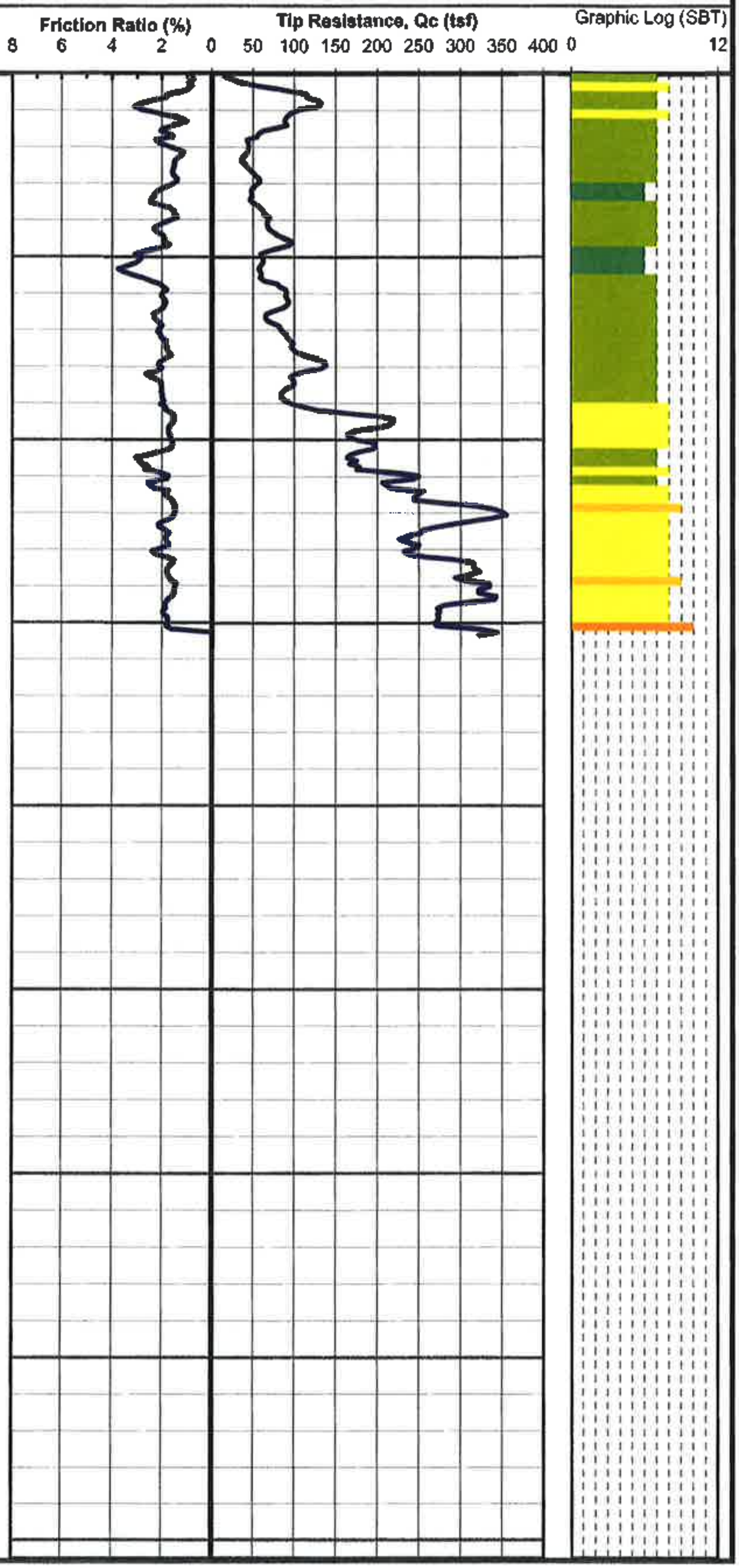
Truck Mounted Electric Cone

with 23-ton reaction weight

Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sand to Silty Sand	medium dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense



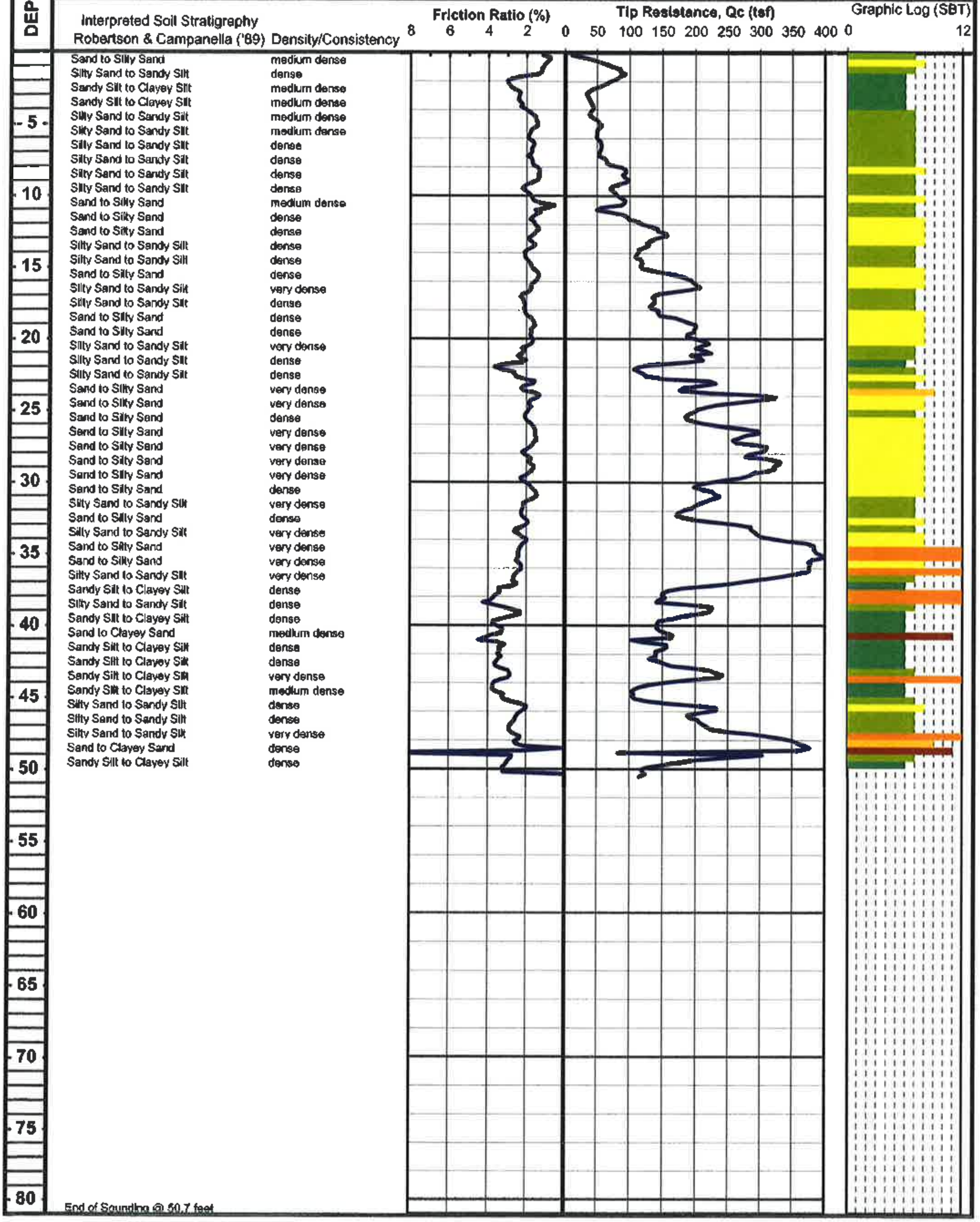
DEPTH (FEET): 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

End of Sounding @ 30.8 feet

Earth Systems
Southwest

CPT No :	**CPT-44**	**Cone Penetrometer:**	**Holguin Fahan & Associates**
Project Name:	World Trade Center's Resort		Truck Mounted Electric Cone
Project No.:	09471-01		with 23-ton reaction weight
Location:	See Site Exploration Plan	**Date:**	1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sand to Silty Sand	medium dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	medium dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	dense
Sand to Clayey Sand	medium dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	very dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Clayey Sand	dense
Sandy Silt to Clayey Silt	dense



End of Sounding @ 50.7 feet

Earth Systems Southwest

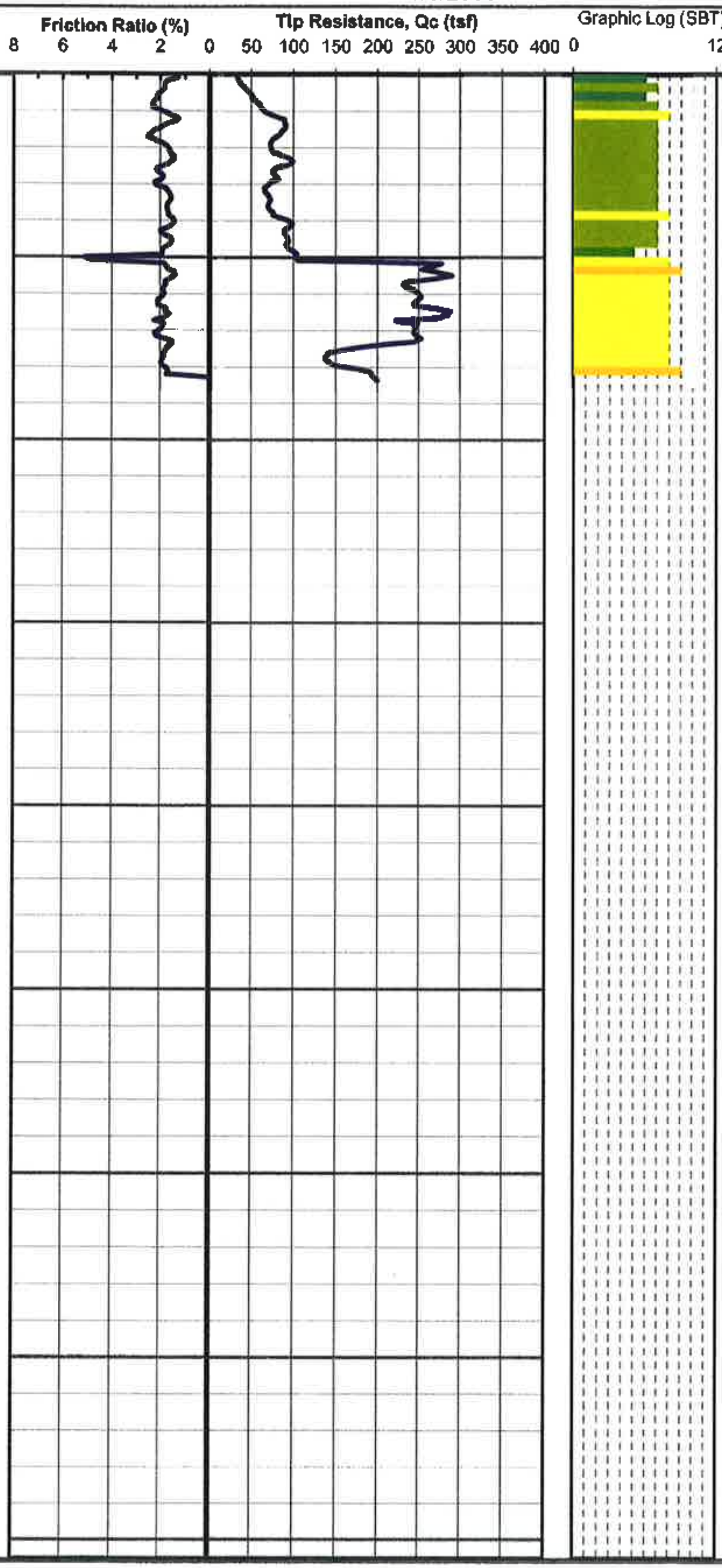
CPT No : CPT-45

Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sandy Silt to Clayey Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense



Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

End of Sounding @ 16.9 feet

Earth Systems Southwest

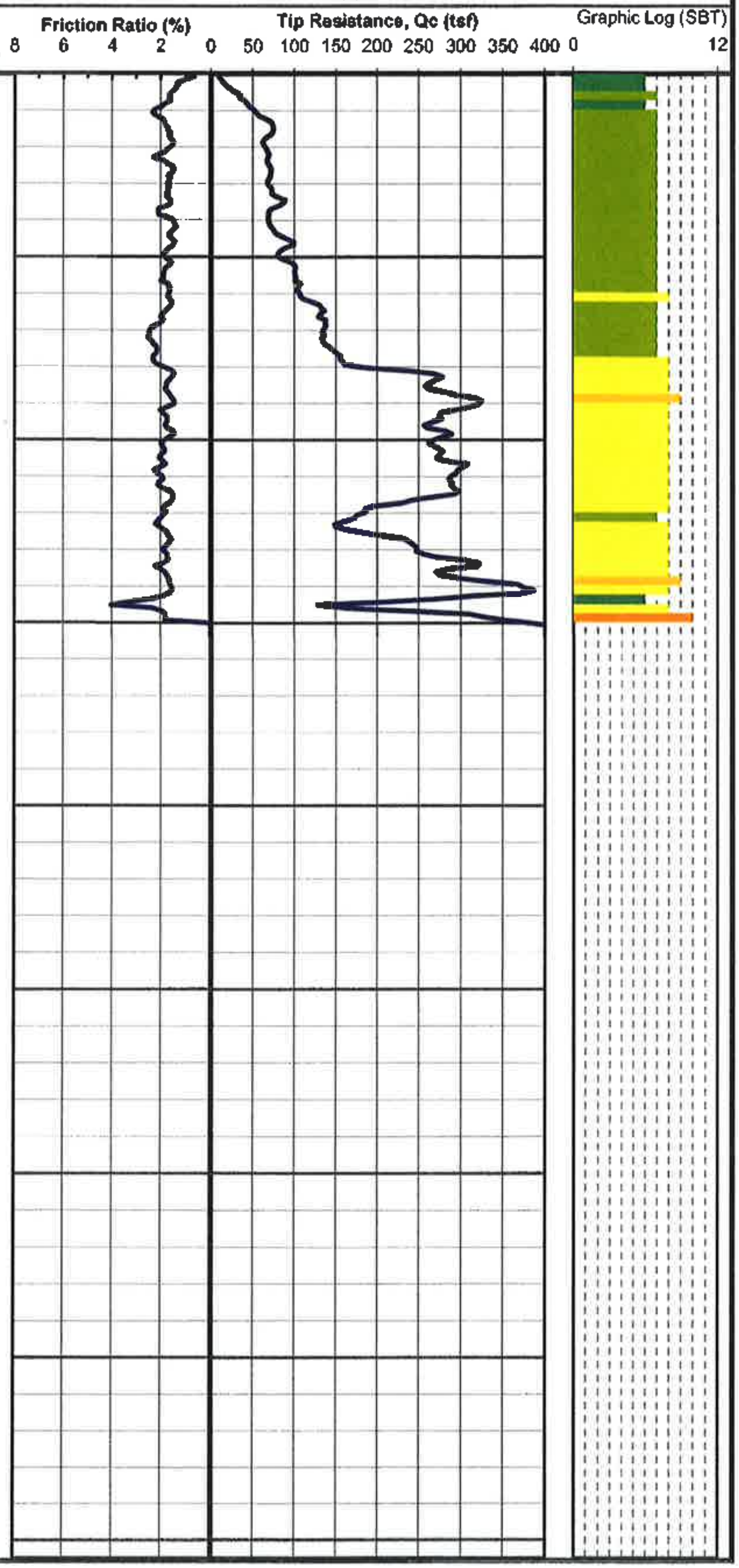
CPT No : CPT-45a

Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand	very dense



- 5 -
10
15
20
25
30
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45
50
55
60
65
70
75
80

End of Sounding @ 30.3 feet

Earth Systems Southwest

CPT No : CPT-46

Project Name: World Trade Center's Resort

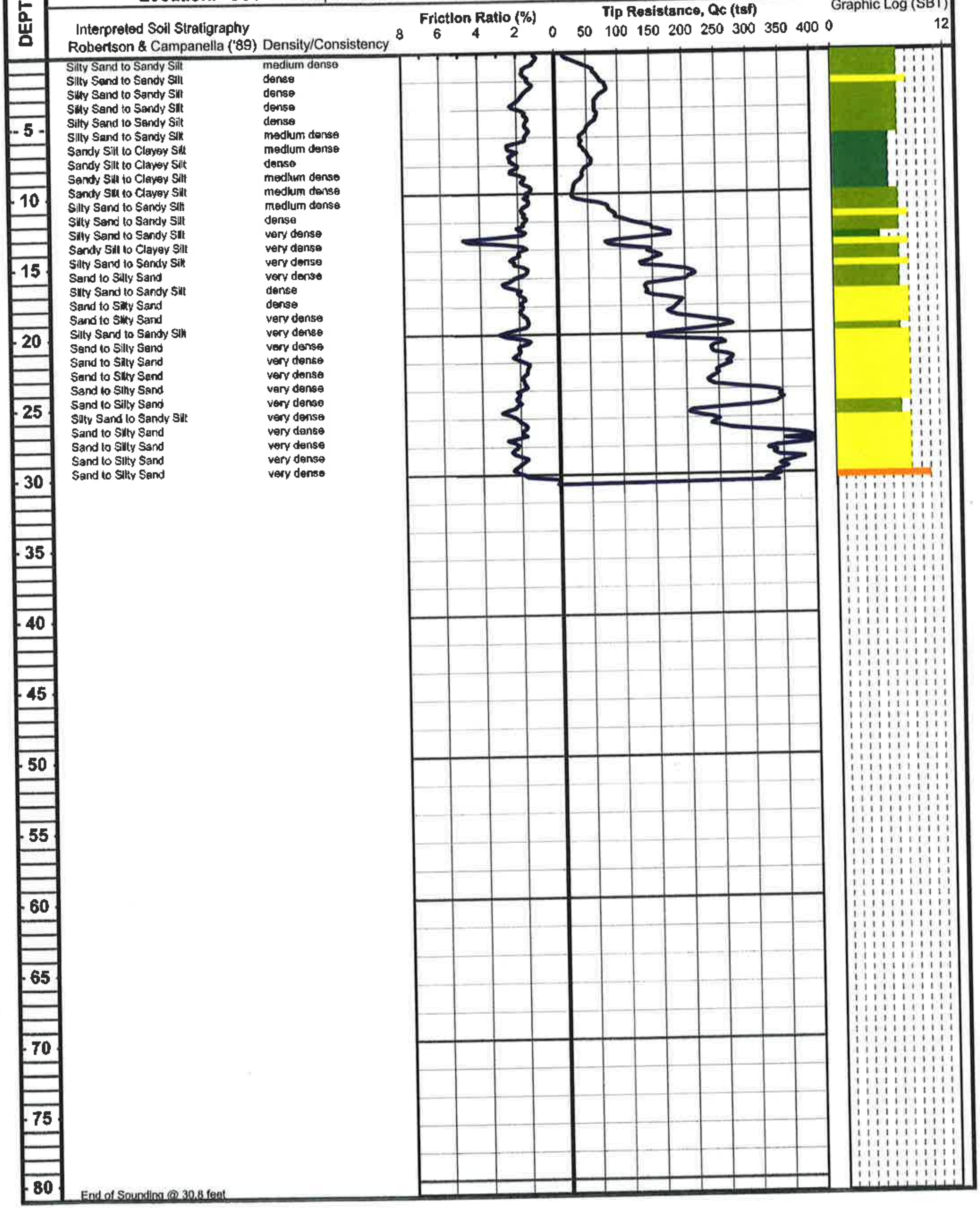
Project No.: 09471-01

Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight

Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	very dense
Sandy Silt to Clayey Silt	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense



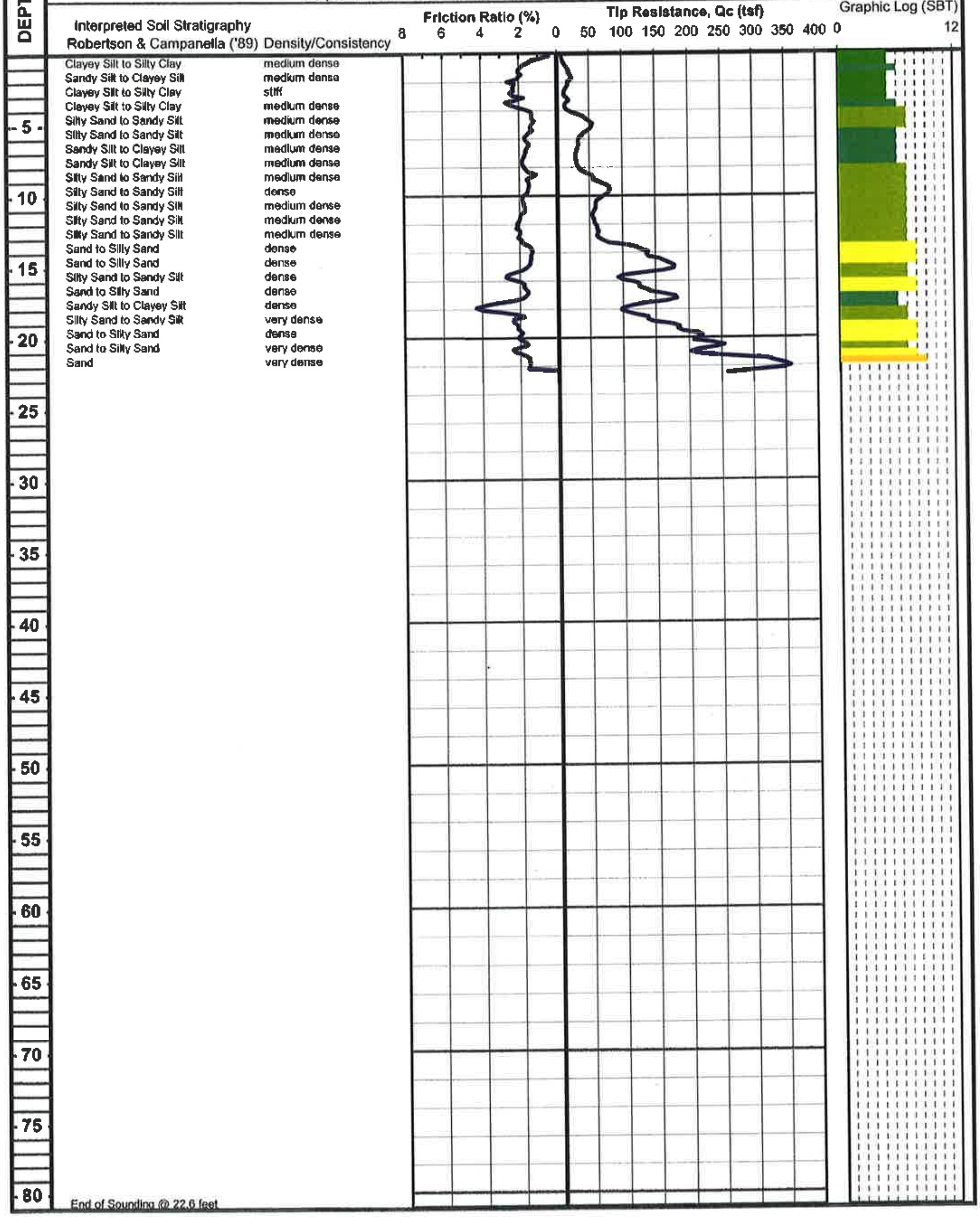
End of Sounding @ 30.8 feet

Earth Systems
Southwest

CPT No : CPT-47
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: Holguin Fahan & Associates
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Clayey Silt to Silty Clay	medium dense
Sandy Silt to Clayey Silt	medium dense
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sandy Silt to Clayey Silt	dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand	very dense



End of Sounding @ 22.6 feet

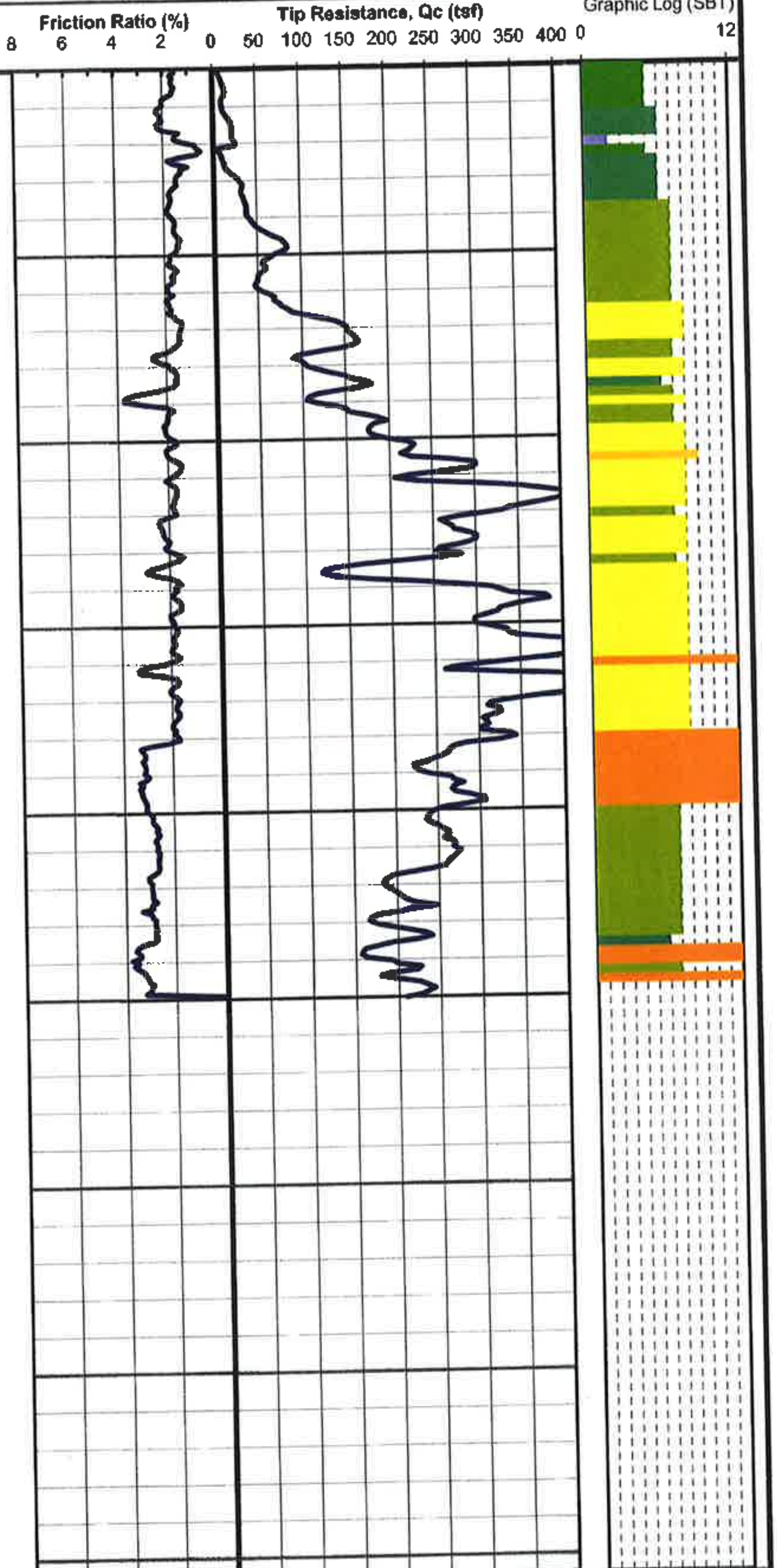
Earth Systems
Southwest

CPT No : CPT-47a
Project Name: World Trade Center's Resort
Project No.: 09471-01
Location: See Site Exploration Plan

Cone Penetrometer: **Holguin Fahan & Associates**
Truck Mounted Electric Cone
with 23-ton reaction weight
Date: 1/5/2003

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	medium dense
Sandy Silt to Clayey Silt	medium dense
Clayey Silt to Silty Clay	stiff
Sandy Silt to Clayey Silt	medium dense
Sandy Silt to Clayey Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	medium dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	dense
Sandy Silt to Clayey Silt	dense
Sand to Silty Sand	dense
Sand to Silty Sand	dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Silty Sand to Sandy Silt	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Silty Sand	very dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	dense
Sand to Clayey Sand	dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	very dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Silty Sand to Sandy Silt	dense
Sand to Clayey Sand	medium dense
Sand to Clayey Sand	medium dense



5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80

End of Sounding @ 50.2 feet

APPENDIX A-3

CPT Report and
Percolation Test Results

Leighton

SUMMARY

OF

CONE PENETRATION TEST DATA

Project:

Riverside Arena
Palm Desert, CA
October 6, 2020

Prepared for:

Mr. Joe Roe
Leighton Consulting
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Prepared by:

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www.kehoetesting.com

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1. **INTRODUCTION**
2. **SUMMARY OF FIELD WORK**
3. **FIELD EQUIPMENT & PROCEDURES**
4. **CONE PENETRATION TEST DATA & INTERPRETATION**

APPENDIX

- CPT Plots
- CPT Classification/Soil Behavior Chart
- Summary of Shear Wave Velocities
- CPT Data Files (sent via email)

SUMMARY

OF

CONE PENETRATION TEST DATA

1. INTRODUCTION

This report presents the results of a Cone Penetration Test (CPT) program carried out for the Riverside Arena project located in Palm Desert, California. The work was performed by Kehoe Testing & Engineering (KTE) on October 6, 2020. The scope of work was performed as directed by Leighton Consulting personnel.

2. SUMMARY OF FIELD WORK

The fieldwork consisted of performing CPT soundings at eight locations to determine the soil lithology. A summary is provided in **TABLE 2.1**.

LOCATION	DEPTH OF CPT (ft)	COMMENTS/NOTES:
2020-CPT-1	85	Refusal
2020-CPT-2	90	
2020-CPT-3	90	
2020-CPT-4	80	Refusal
2020-CPT-5	75	
2020-CPT-6	75	
2020-CPT-7	75	
2020-CPT-8	90	

TABLE 2.1 - Summary of CPT Soundings

3. FIELD EQUIPMENT & PROCEDURES

The CPT soundings were carried out by **KTE** using an integrated electronic cone system manufactured by Vertek. The CPT soundings were performed in accordance with ASTM standards (D5778). The cone penetrometers were pushed using a 30-ton CPT rig. The cone used during the program was a 15 cm^2 cone and recorded the following parameters at approximately 2.5 cm depth intervals:

- Cone Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (u)
- Inclination
- Penetration Speed

At locations 2020-CPT-1 & 2020-CPT-8, shear wave measurements were obtained at various depths. The shear wave is generated using an air-actuated hammer, which is located inside the front jack of the CPT rig. The cone has a triaxial geophone, which recorded the shear wave signal generated by the air hammer.

The above parameters were recorded and viewed in real time using a laptop computer. Data is stored at the KTE office for up to 2 years for future analysis and reference. A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

4. CONE PENETRATION TEST DATA & INTERPRETATION

The Cone Penetration Test data is presented in graphical form in the attached Appendix. These plots were generated using the CPeT-IT program. Penetration depths are referenced to ground surface. The soil behavior type on the CPT plots is derived from the attached CPT SBT plot (Robertson, "Interpretation of Cone Penetration Test…", 2009) and presents major soil lithologic changes. The stratigraphic interpretation is based on relationships between cone resistance (qc), sleeve friction (fs), and penetration pore pressure (u). The friction ratio (Rf), which is sleeve friction divided by cone resistance, is a calculated parameter that is used along with cone resistance to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone resistance and generate excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little (or negative) excess pore water pressures.

The CPT data files have also been provided. These files can be imported in CPeT-IT (software by GeoLogismiki) and other programs to calculate various geotechnical parameters.

It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and u. In these situations, experience, judgement and an assessment of the pore pressure data should be used to infer the soil behavior type.

If you have any questions regarding this information, please do not hesitate to call our office at (714) 901-7270.

Sincerely,

KEHOE TESTING & ENGINEERING

Steven P. Kehoe
President

10/12/20-wt-2183

APPENDIX

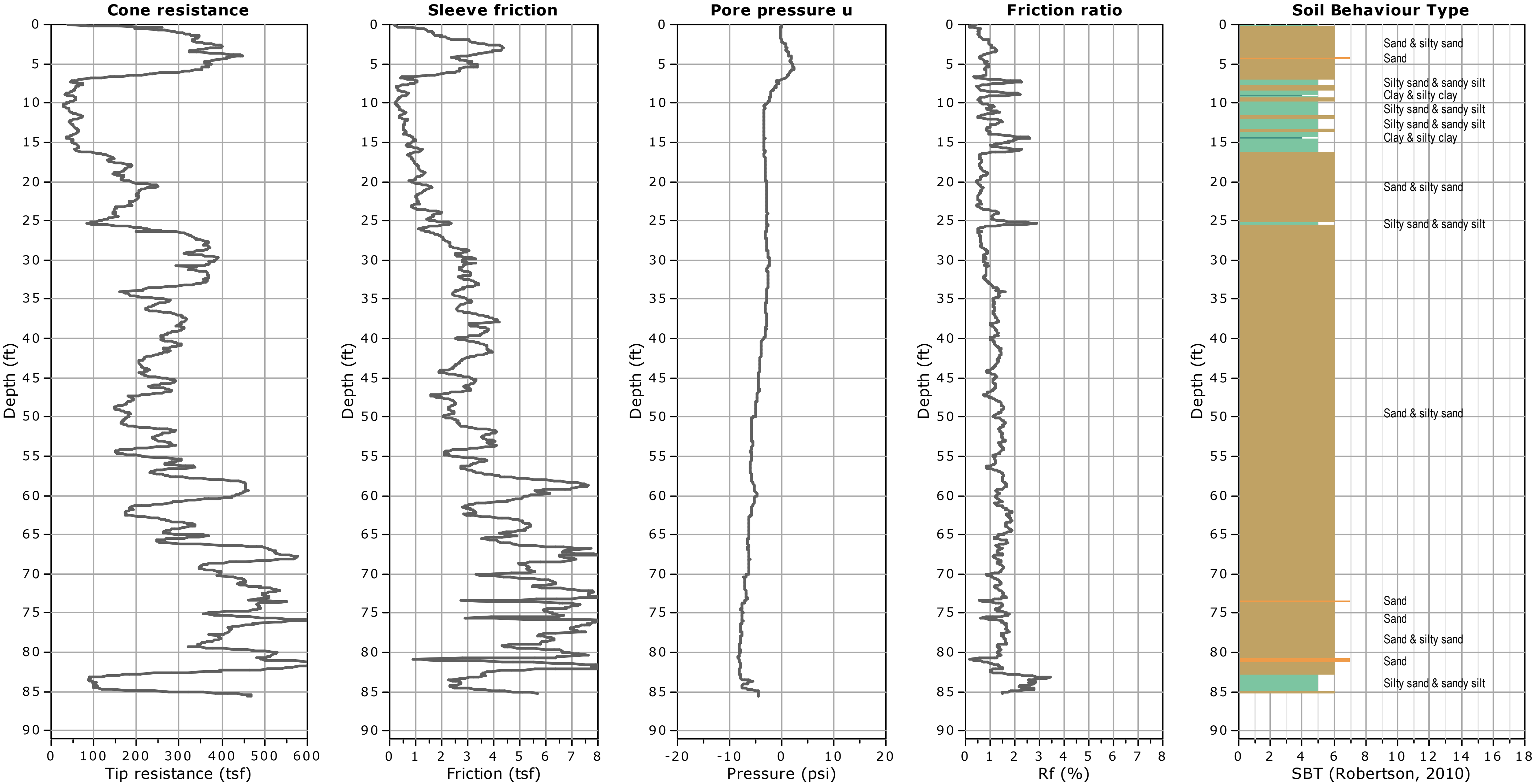
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: Leighton Consulting / Riverside Arena

Location: Palm Desert, CA

2020-CPT-1

Total depth: 85.58 ft, Date: 10/6/2020



Kehoe Testing and Engineering
714-901-7270
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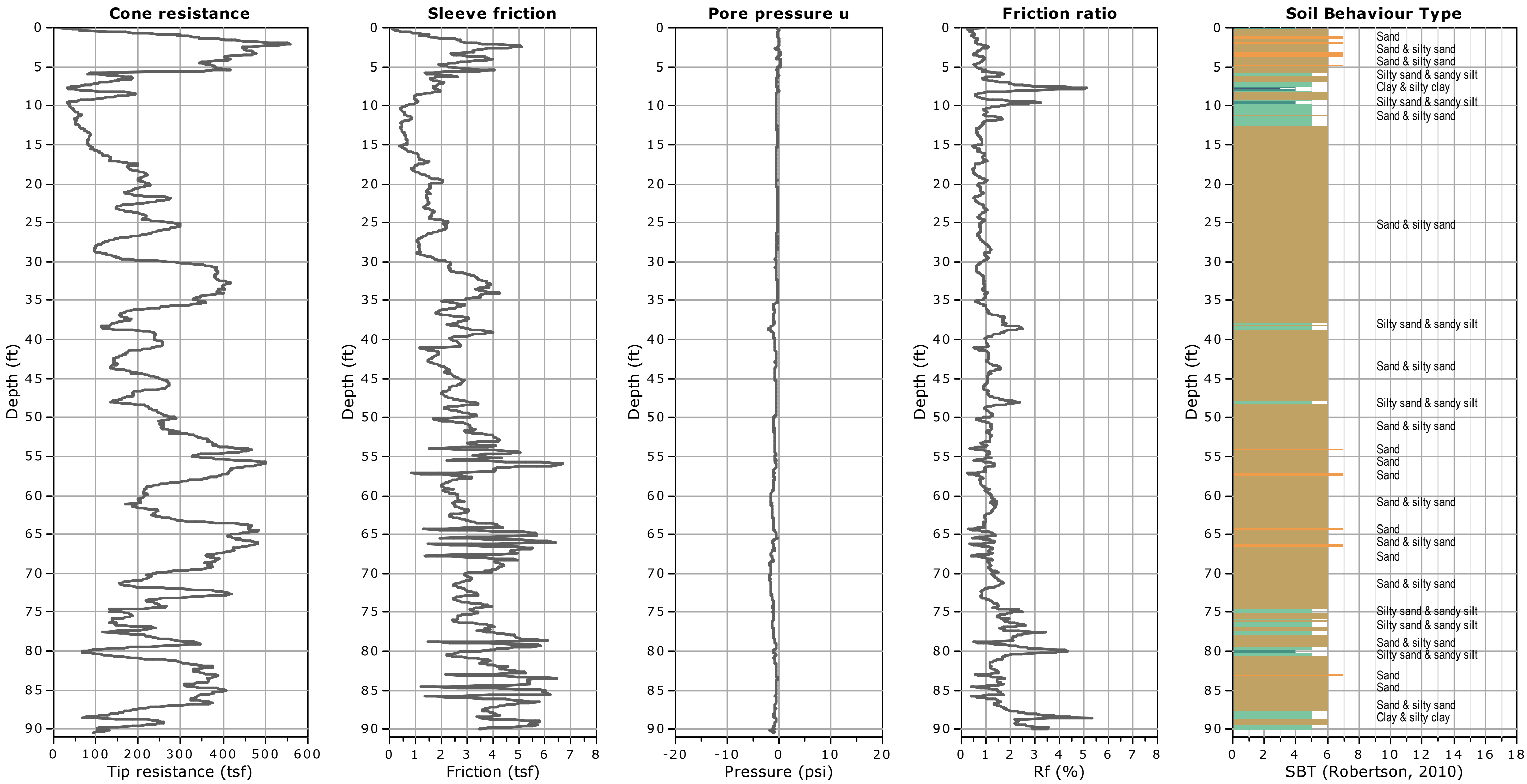
Project: **Leighton Consulting / Riverside Arena** **2020-CPT-2**

Location: **Palm Desert, CA** Total depth: 90.44 ft, Date: 10/6/2020



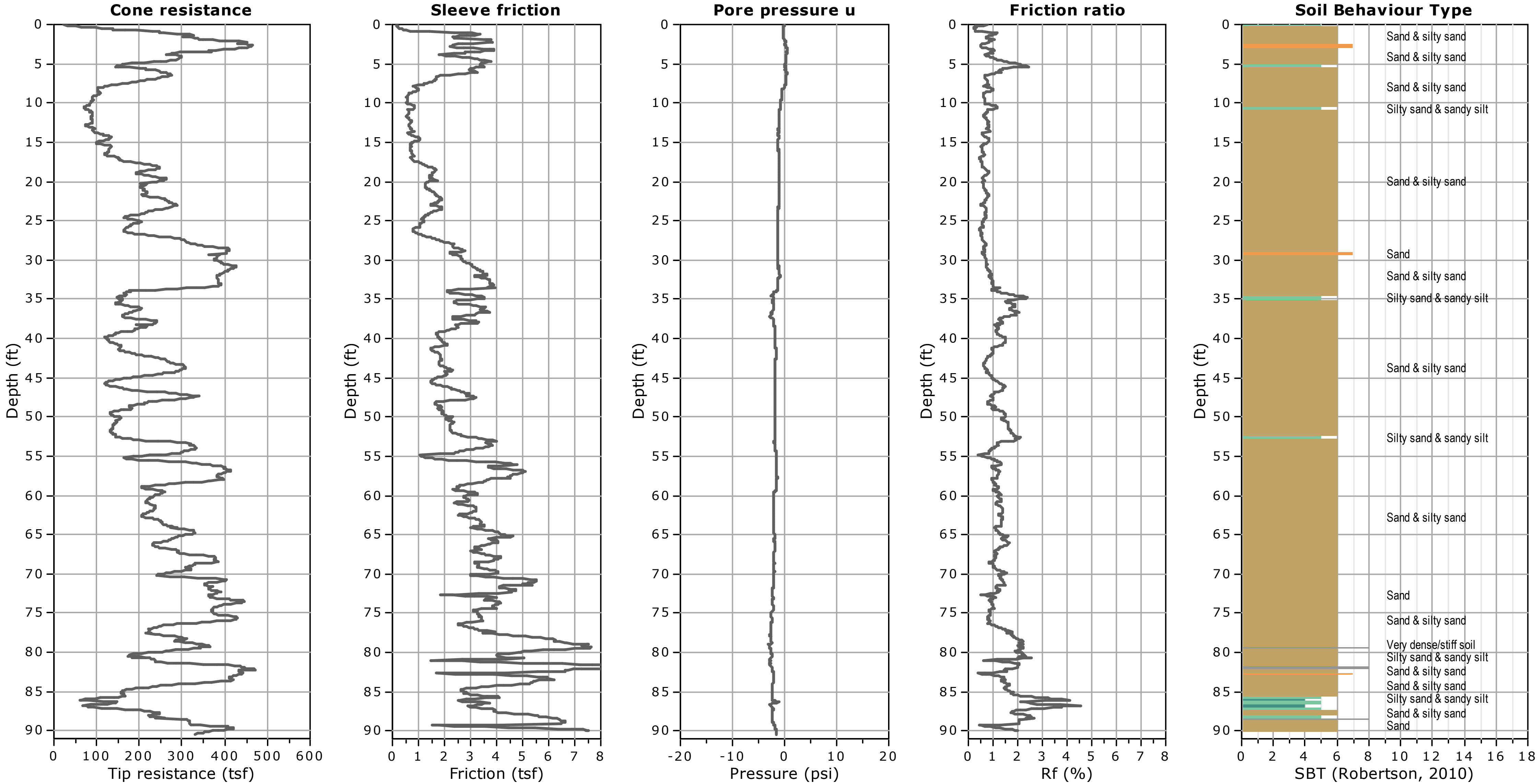
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: Leighton Consulting / Riverside Arena

Location: Palm Desert, CA

2020-CPT-3

Total depth: 90.43 ft, Date: 10/6/2020



Kehoe Testing and Engineering
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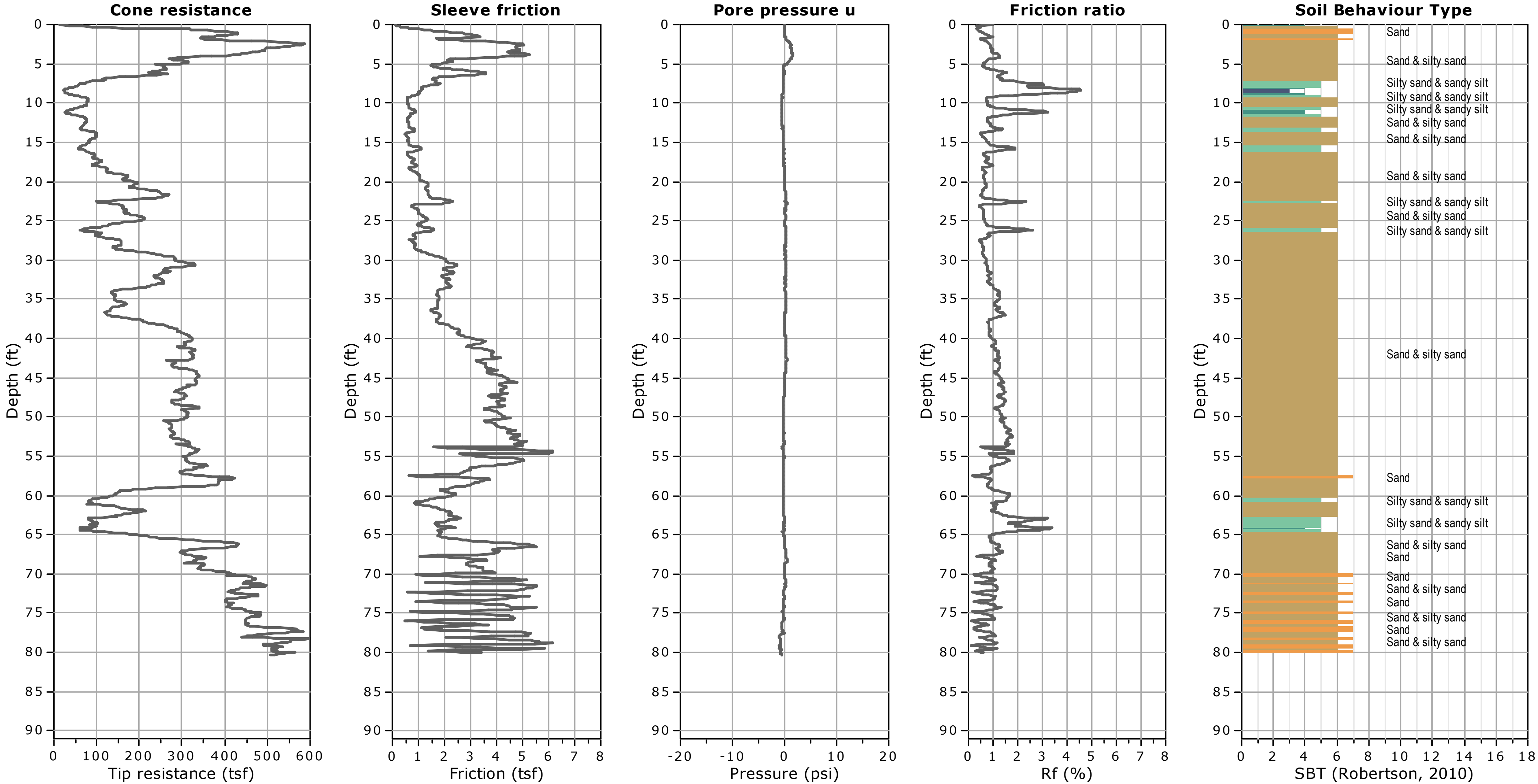
Project: **Leighton Consulting / Riverside Arena**
Location: **Palm Desert, CA**

2020-CPT-4
Total depth: 80.38 ft, Date: 10/6/2020



Kehoe Testing and Engineering
714-901-7270
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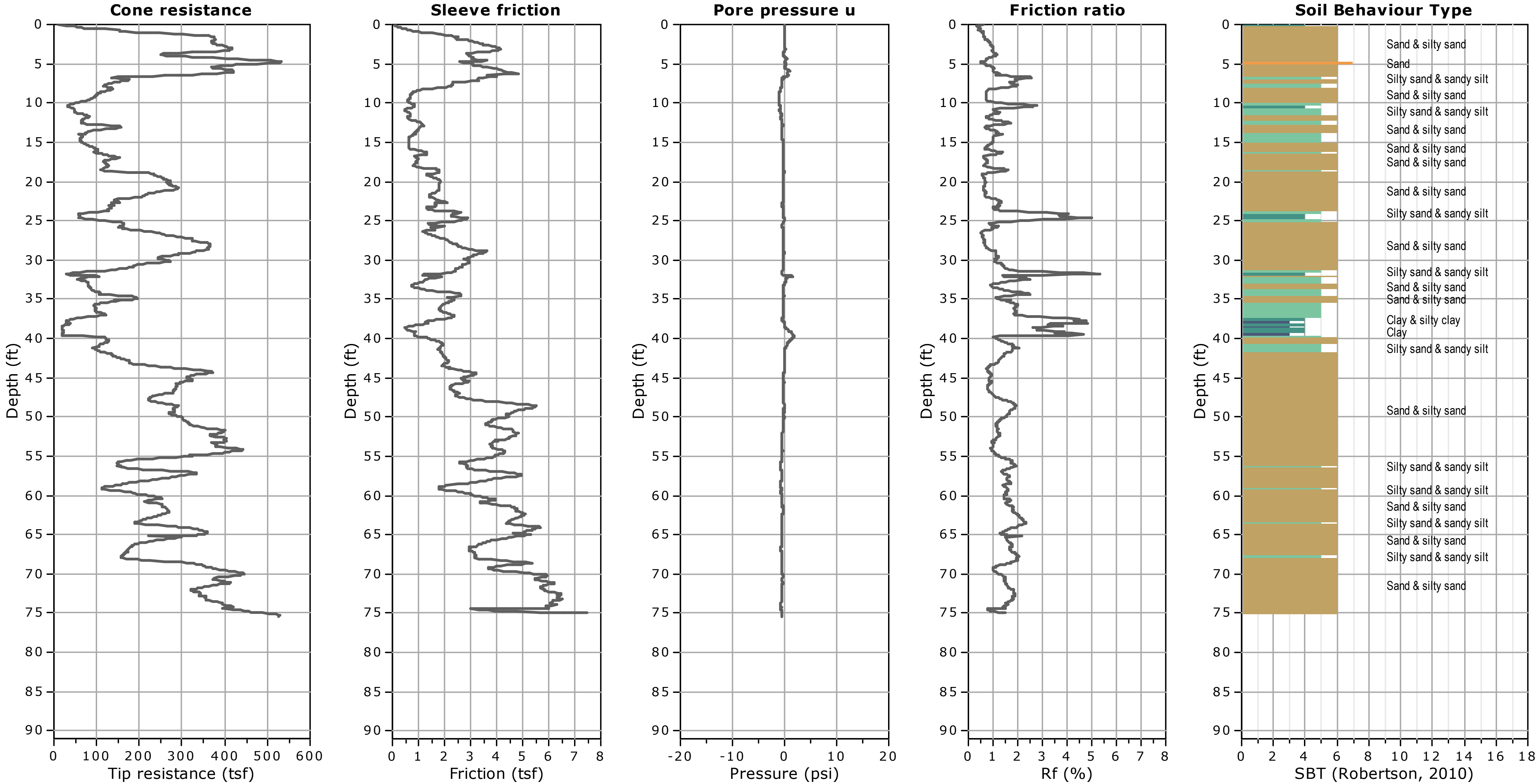
Project: **Leighton Consulting / Riverside Arena**
Location: **Palm Desert, CA**

2020-CPT-5
Total depth: 75.41 ft, Date: 10/6/2020



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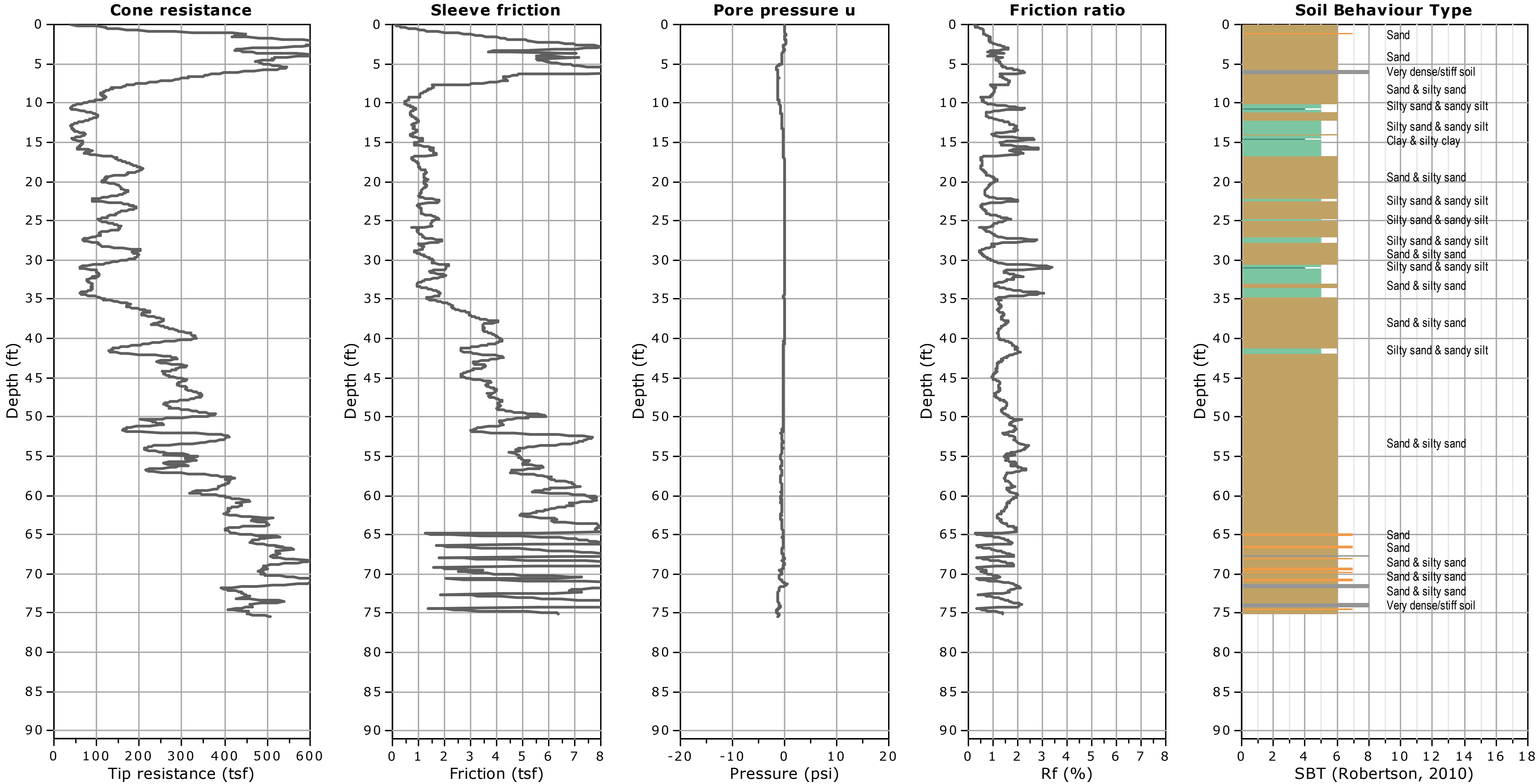
Project: Leighton Consulting / Riverside Arena

Location: Palm Desert, CA

2020-CPT-6

Total depth: 75.48 ft, Date: 10/6/2020



Kehoe Testing and Engineering
714-901-7270
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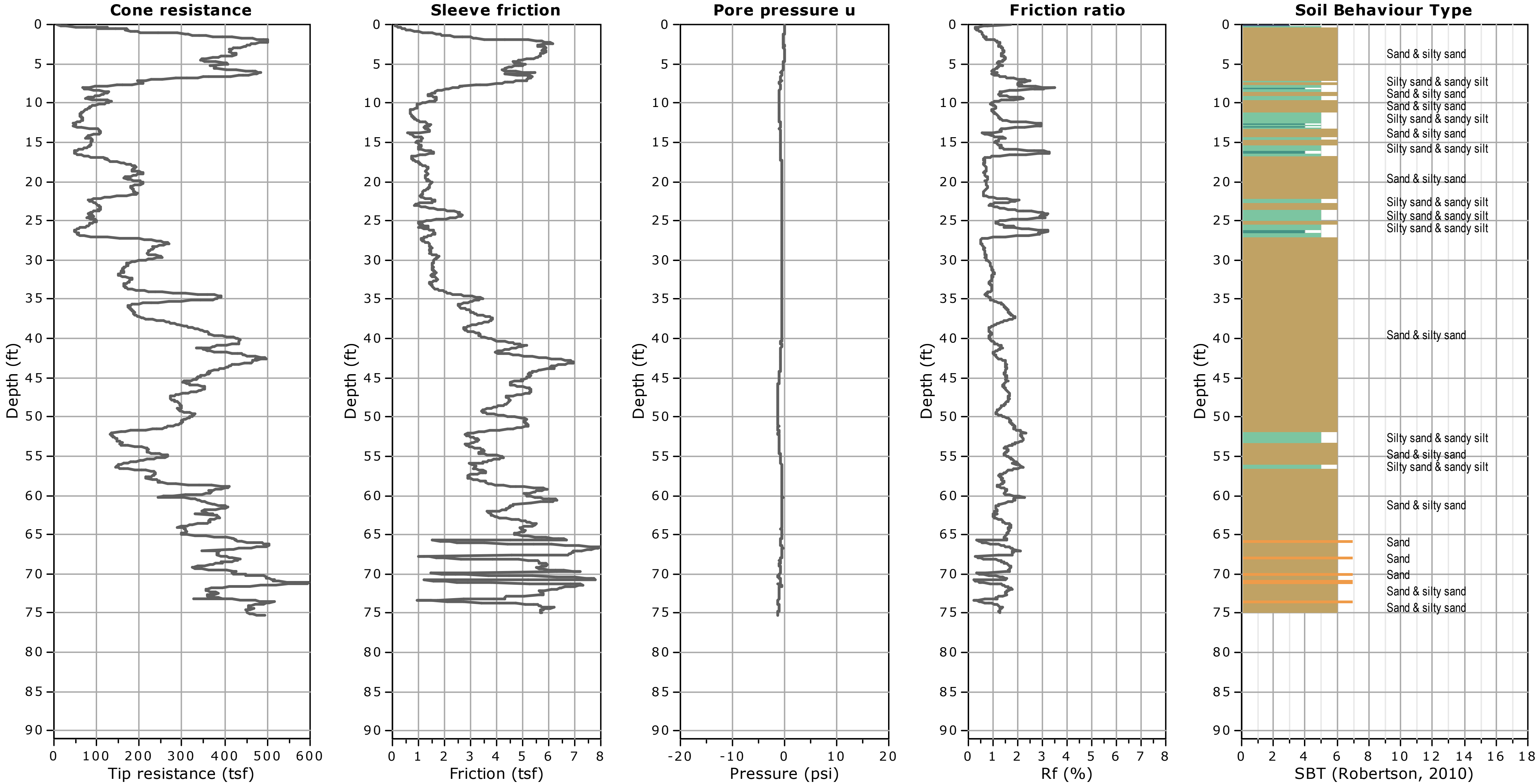
Project: Leighton Consulting / Riverside Arena **2020-CPT-7**

Location: Palm Desert, CA Total depth: 75.34 ft, Date: 10/6/2020



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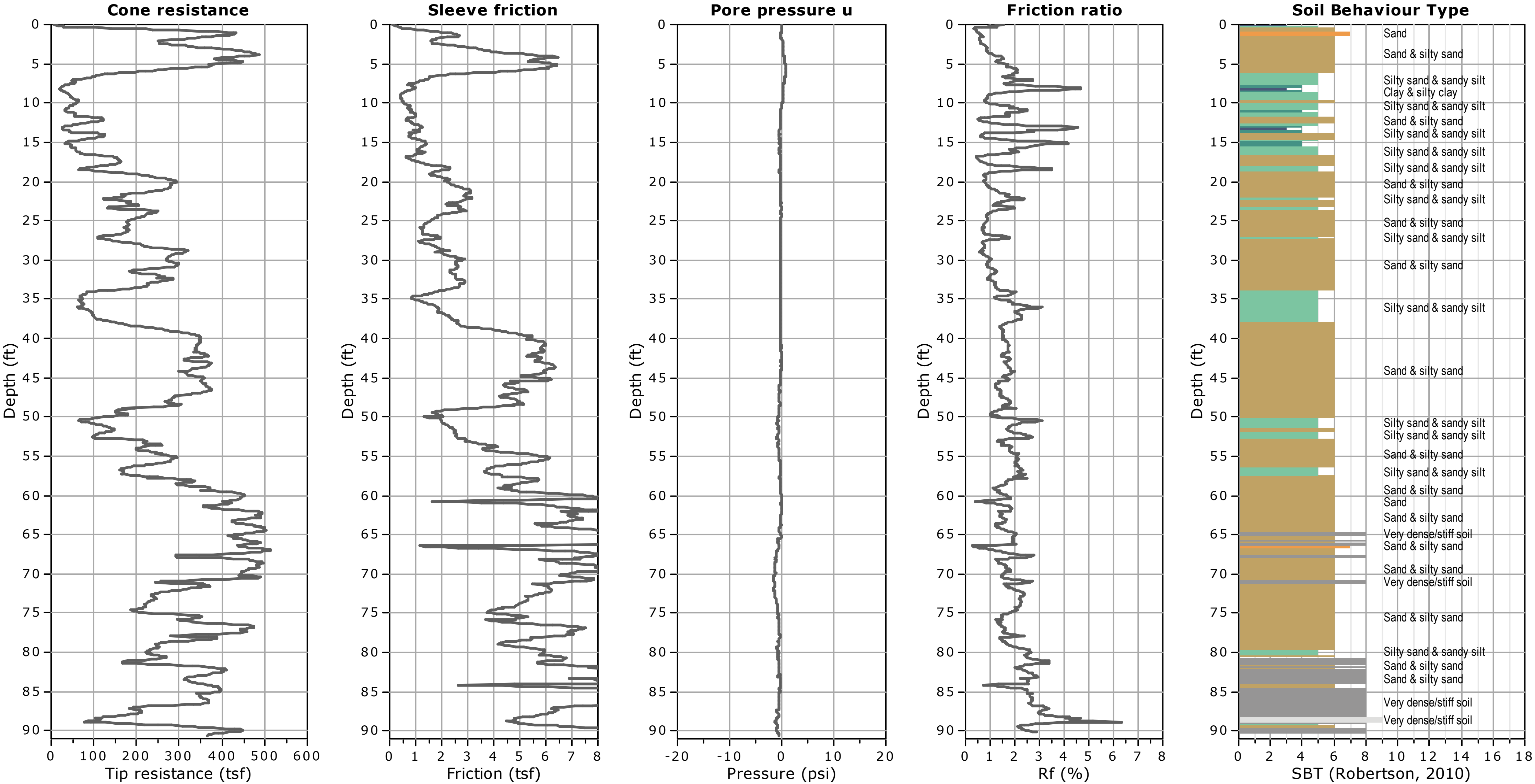
Project: Leighton Consulting / Riverside Arena
Location: Palm Desert, CA

2020-CPT-8
Total depth: 90.57 ft, Date: 10/7/2020



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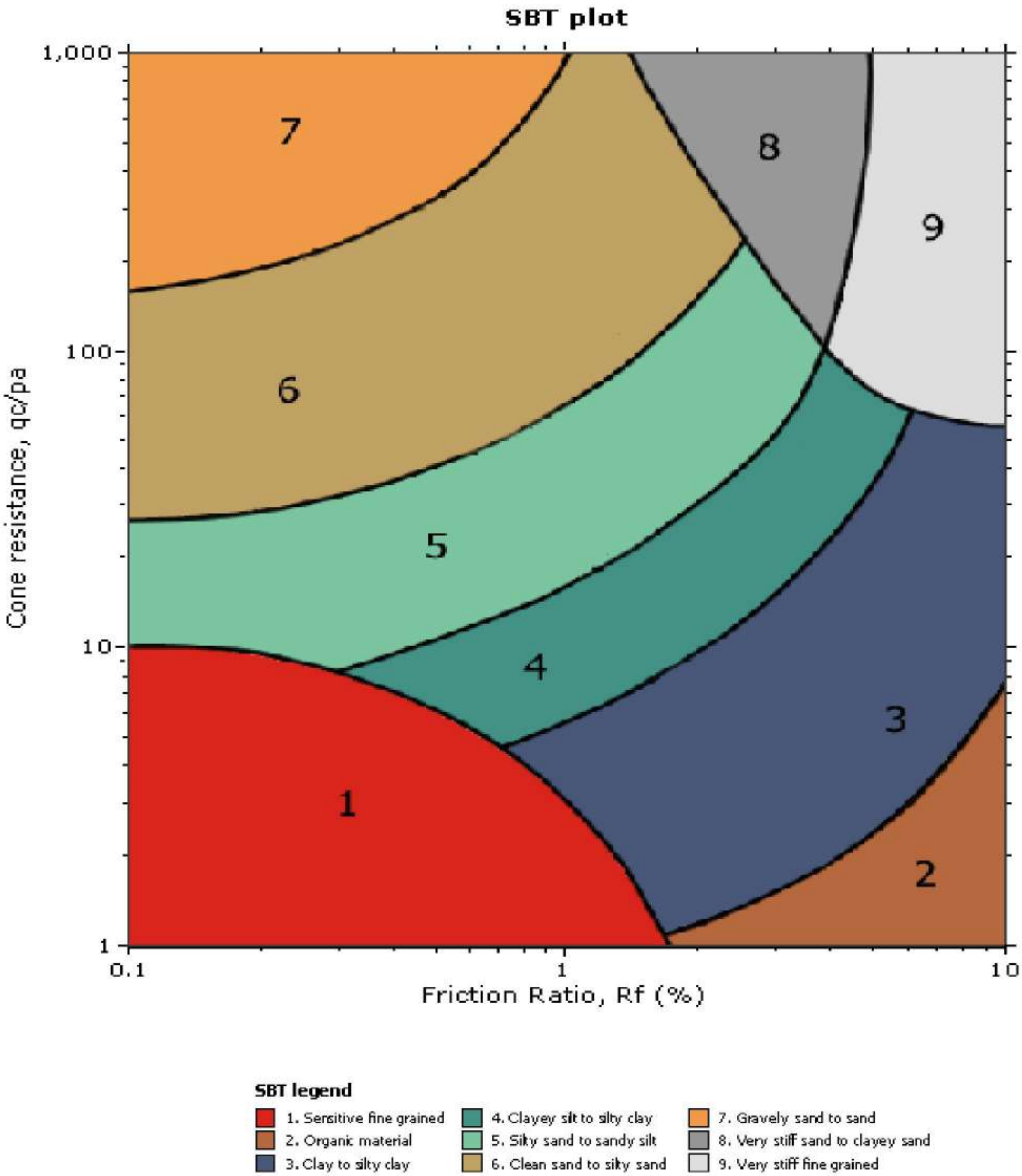


Leighton Consulting
Riverside Arena
Palm Desert, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-1	10.93	9.93	10.13	11.86	854	
	20.11	19.11	19.21	22.88	840	824
	30.15	29.15	29.22	32.12	910	1083
	40.12	39.12	39.17	40.76	961	1152
	50.07	49.07	49.11	49.36	995	1156
	60.07	59.07	59.10	57.90	1021	1170
	70.08	69.08	69.11	66.28	1043	1194
	80.02	79.02	79.05	73.00	1083	1479
	85.56	84.56	84.58	76.96	1099	1399
CPT-8	11.02	10.02	10.22	12.72	803	
	20.01	19.01	19.11	23.96	798	792
	30.02	29.02	29.09	34.36	847	959
	40.03	39.03	39.08	45.28	863	915
	50.03	49.03	49.07	53.42	919	1227
	60.07	59.07	59.10	61.44	962	1251
	70.01	69.01	69.04	69.60	992	1218
	80.18	79.18	79.21	77.06	1028	1363
	90.03	89.03	89.05	86.08	1035	1092

Shear Wave Source Offset - 2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P1
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/14/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	15
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	10
		Depth to Initial Water Depth (ft):	15
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)
1	11:47	3	4.82	122.2	23.7
2	11:50	3	4.70	123.6	47.4
3	11:53	3	4.98	120.2	71.1
4	11:55	2	4.81	122.3	86.8
5	11:58	3	4.96	120.5	110.5
6	12:03	5	4.70	123.6	150.0
7	12:08	5	5.00	120.0	189.5
8	12:13	5	4.90	121.2	228.9
9	12:18	5	4.88	121.4	268.4
10	12:23	5	4.90	121.2	307.9
11	12:28	5	5.10	118.8	347.4
12	12:33	5	4.85	121.8	386.8
13	12:38	5	4.71	123.5	426.3
14	12:43	5	5.08	119.0	465.8
15	12:48	5	4.81	122.3	505.3

High Flowrate Percolation Test Calculation

Total Volume of Water Delivered (gallons)	505.3	Rate of Water Delivery:
Total Volume of Water Delivered (cubic inches)	116715.789	5 gallons per 38 seconds
Average Water Height (inches)	121.4	
Average Percolation Surface Area (cubic Inches)	3101.1	
Duration of Test (minutes)	64	
Duration of Test (hours)	1.07	

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 35.3

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P2
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/15/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	50
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	20
		Depth to Initial Water Depth (ft):	50
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)	
1	13:19	-	-	-	0.0	*Time 0
2	13:22	3	35.60	172.8	48.6	
3	13:25	3	35.48	174.2	97.3	
4	13:28	3	35.31	176.3	145.9	
5	13:31	3	35.21	177.5	194.6	
6	13:34	3	34.95	180.6	243.2	*Refill Water
7	13:53	-	-	-	243.2	Trailer
8	13:56	3	35.38	175.4	291.9	
9	13:59	3	34.84	181.9	340.5	
10	14:02	3	34.60	184.8	389.2	
11	14:05	3	34.48	186.2	437.8	
12	14:08	3	34.41	187.1	486.5	
13	14:11	3	34.40	187.2	535.1	
14	14:14	3	34.44	186.7	583.8	
15	14:17	3	34.40	187.2	632.4	
16	14:20	3	34.40	187.2	681.1	

High Flowrate Percolation Test Calculation

Total Volume of Water Delivered (gallons)	681.1
Total Volume of Water Delivered (cubic inches)	157329.73
Average Water Height (inches)	181.8
Average Percolation Surface Area (cubic Inches)	4619.4
Duration of Test (minutes)	42
Duration of Test (hours)	0.70

Rate of Water Delivery:
5 gallons per 18.5 seconds

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 48.7

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P3
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/14/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	15
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	10
		Depth to Initial Water Depth (ft):	15
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)
1	16:51	3	4.95	120.6	21.4
2	16:54	3	4.85	121.8	42.9
3	16:57	3	4.90	121.2	64.3
4	17:00	3	5.00	120.0	85.7
5	17:03	3	4.98	120.2	107.1
6	17:06	3	5.10	118.8	128.6
7	17:09	3	4.95	120.6	150.0
8	17:12	3	5.00	120.0	171.4
9	17:15	3	4.98	120.2	192.9
10	17:18	3	4.95	120.6	214.3
11	17:21	3	5.01	119.9	235.7
12	17:24	3	5.10	118.8	257.1
13	17:27	3	5.05	119.4	278.6
14	17:30	3	5.01	119.9	300.0
15	17:33	3	4.90	121.2	321.4

High Flowrate Percolation Test Calculation

Total Volume of Water Delivered (gallons)	321.4
Total Volume of Water Delivered (cubic inches)	74250
Average Water Height (inches)	120.2
Average Percolation Surface Area (cubic Inches)	3071.6
Duration of Test (minutes)	45
Duration of Test (hours)	0.75

Rate of Water Delivery:
5 gallons per 42 seconds

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 32.2

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P4
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/15/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	15
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	10
		Depth to Initial Water Depth (ft):	15
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)
1	7:37	3	6.10	106.8	40.9
2	7:40	3	6.42	103.0	81.8
3	7:43	3	6.27	104.8	122.7
4	7:46	3	6.20	105.6	163.6
5	7:49	3	4.80	122.4	204.5
6	7:52	3	4.85	121.8	245.5
7	7:55	3	4.71	123.5	286.4
8	7:58	3	4.68	123.8	327.3
9	8:01	3	4.68	123.8	368.2
10	8:04	3	4.65	124.2	409.1
11					
12					
13					
14					
15					

High Flowrate Percolation Test Calculation

Total Volume of Water Delivered (gallons)	409.1
Total Volume of Water Delivered (cubic inches)	94500
Average Water Height (inches)	116.0
Average Percolation Surface Area (cubic Inches)	2964.9
Duration of Test (minutes)	30
Duration of Test (hours)	0.50

Rate of Water Delivery:
5 gallons per 22 seconds

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 63.7

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P5
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/15/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	15
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	10
		Depth to Initial Water Depth (ft):	15
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)
1	9:25	3	4.75	123.0	7.9
2	9:28	3	4.70	123.6	15.8
3	9:31	3	4.85	121.8	23.7
4	9:34	3	4.95	120.6	31.6
5	9:37	3	4.82	122.2	39.5
6	9:40	3	4.76	122.9	47.4
7	9:43	3	4.75	123.0	55.3
8	9:46	3	4.72	123.4	63.2
9	9:49	3	4.76	122.9	71.1
10	9:52	3	4.71	123.5	78.9
11	9:55	3	4.73	123.2	86.8
12	9:58	3	4.75	123.0	94.7
13	10:01	3	4.73	123.2	102.6
14	10:04	3	4.75	123.0	110.5
15	10:07	3	4.72	123.4	118.4
16	10:07	3	4.75	123.0	126.3

Total Volume of Water Delivered (gallons)	126.3
Total Volume of Water Delivered (cubic inches)	29178.9474
Average Water Height (inches)	122.9
Average Percolation Surface Area (cubic Inches)	3137.8
Duration of Test (minutes)	48
Duration of Test (hours)	0.80

Rate of Water Delivery:
5 gallons per 114 seconds

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 11.6

Boring Percolation Test Data Sheet

Project Number:	12915.001	**Test Hole Number:**	2020-P6
Project Name:	Riverside Arena	**Date Excavated:**	10/12/2020
Earth Description:	Alluvium	**Date Tested:**	10/15/2020
Liquid Description:	Tap water	**Depth of boring (ft):**	15
Tested By:	JWJ	**Radius of boring, r (in):**	4
		Radius of casing (in):	1
		Length of slotted of casing (ft):	10
		Depth to Initial Water Depth (ft):	15
		Porosity of Annulus Material, *n* :	0.35
		Bentonite Plug at Bottom:	No

Field Percolation Data

Reading	Time	Time Interval, Δt (minutes)	Depth to Water (feet bgs)	Water Height, H (inches)	Cumulative Water Volume Delivered (gallons)
1	12:02	3	5.13	118.4	13.2
2	12:05	3	5.08	119.0	26.5
3	12:08	3	4.99	120.1	39.7
4	12:11	3	5.10	118.8	52.9
5	12:14	3	4.97	120.4	66.2
6	12:17	3	5.05	119.4	79.4
7	12:20	3	4.92	121.0	92.6
8	12:23	3	5.03	119.6	105.9
9	12:26	3	4.98	120.2	119.1
10	12:29	3	5.10	118.8	132.4
11	12:32	3	5.05	119.4	145.6
12	12:35	3	5.03	119.6	158.8
13	12:38	3	5.00	120.0	172.1
14	12:41	3	4.99	120.1	185.3
15	12:44	3	5.03	119.6	198.5
16	12:47	3	5.10	118.8	211.8
17	12:50	3	5.01	119.9	225.0
18	12:53	3	4.98	120.2	238.2

Total Volume of Water Delivered (gallons)	238.2
Total Volume of Water Delivered (cubic inches)	55032.3529
Average Water Height (inches)	119.6
Average Percolation Surface Area (cubic Inches)	3057.1
Duration of Test (minutes)	54
Duration of Test (hours)	0.90

Rate of Water Delivery:
5 gallons per 68 seconds

$$\text{Measured Infiltration Rate} = (\text{Total Volume})/(\text{Test Duration})/(\text{Surface Area})$$

Measured Infiltration Rate (inches per hour) = 20.0

APPENDIX B

GEOTECHNICAL LABORATORY TESTING

APPENDIX B-1

Geotechnical Laboratory Testing
(This Study)

Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	FLM/MRV	Date:	10/21/20
Project No.:	12915.001	Input By:	M. Vinet	Date:	10/27/20
Boring No.:	LB-1	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Olive Brown.				

Preparation Method: [X] Moist [ ] Dry — [X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340 — *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5609	5656	5606			
Weight of Mold (g)	3559	3559	3559			
Net Weight of Soil (g)	2050	2097	2047			
Wet Weight of Soil + Cont. (g)	2183.6	2413.4	2375.1			
Dry Weight of Soil + Cont. (g)	2076.2	2255.4	2188.9			
Weight of Container (g)	332.0	328.2	332.7			
Moisture Content (%)	6.2	8.2	10.0			
Wet Density (pcf)	135.3	138.4	135.1			
Dry Density (pcf)	127.5	127.9	122.8			

Maximum Dry Density (pcf) **128.5** **Optimum Moisture Content (%)** **7.2**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

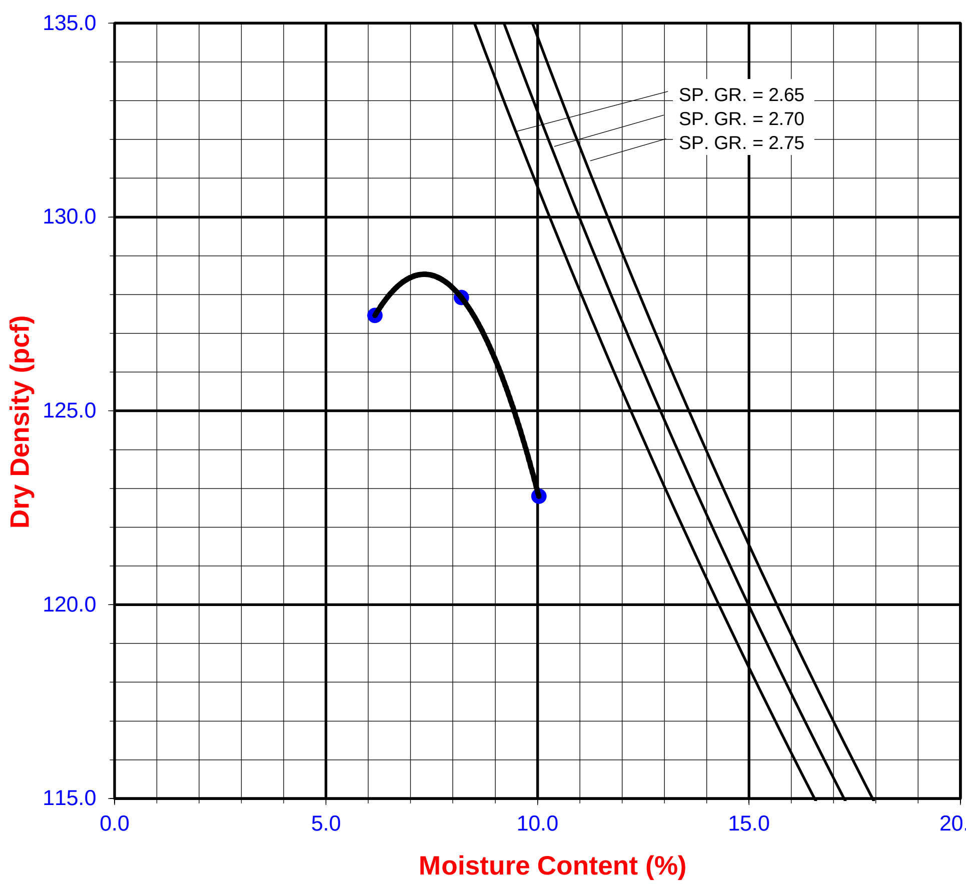
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	FLM/MRV	Date:	10/21/20
Project No.:	12915.001	Input By:	M. Vinet	Date:	10/27/20
Boring No.:	LB-4	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Olive Brown.				

Preparation Method: [X] Moist [ ] Dry [X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5656	5726	5687			
Weight of Mold (g)	3559	3559	3559			
Net Weight of Soil (g)	2097	2167	2128			
Wet Weight of Soil + Cont. (g)	2411.5	2487.1	2449.4			
Dry Weight of Soil + Cont. (g)	2300.0	2330.1	2260.0			
Weight of Container (g)	332.5	329.2	327.8			
Moisture Content (%)	5.7	7.8	9.8			
Wet Density (pcf)	138.4	143.0	140.5			
Dry Density (pcf)	131.0	132.6	127.9			

Maximum Dry Density (pcf) 133.0 **Optimum Moisture Content (%)** 7.1

PROCEDURE USED

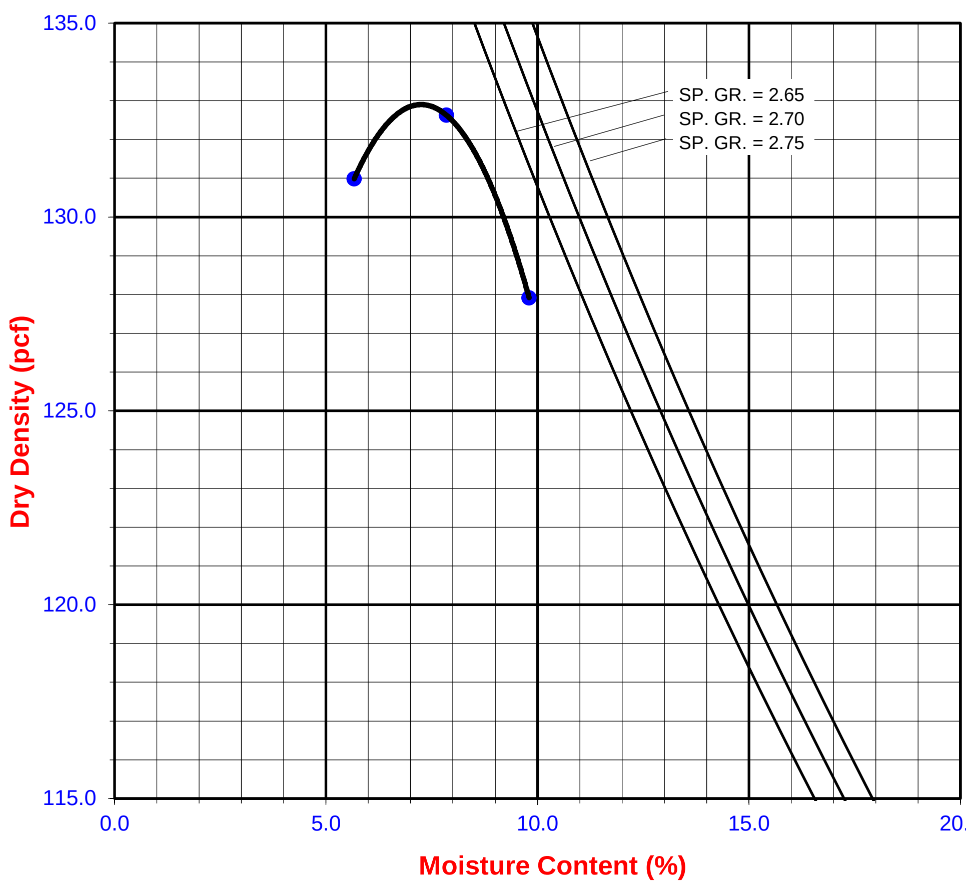
[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:
GR:SA:FI

Atterberg Limits:
LL,PL,PI



Compaction; LB-4, B-1 (10-09-20)

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	FLM/MRV	Date:	10/21/20
Project No.:	12915.001	Input By:	M. Vinet	Date:	10/28/20
Boring No.:	P-1	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Olive Brown.				

Preparation Method: [X] Moist [ ] Dry [X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5470	5539	5558	5518		
Weight of Mold (g)	3559	3559	3559	3559		
Net Weight of Soil (g)	1911	1980	1999	1959		
Wet Weight of Soil + Cont. (g)	2255.3	2279.6	2312.3	2274.8		
Dry Weight of Soil + Cont. (g)	2152.4	2145.0	2141.3	2077.1		
Weight of Container (g)	328.4	328.5	332.5	328.3		
Moisture Content (%)	5.6	7.4	9.5	11.3		
Wet Density (pcf)	126.1	130.7	131.9	129.3		
Dry Density (pcf)	119.4	121.7	120.5	116.2		

Maximum Dry Density (pcf) 121.8 **Optimum Moisture Content (%)** 7.8

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

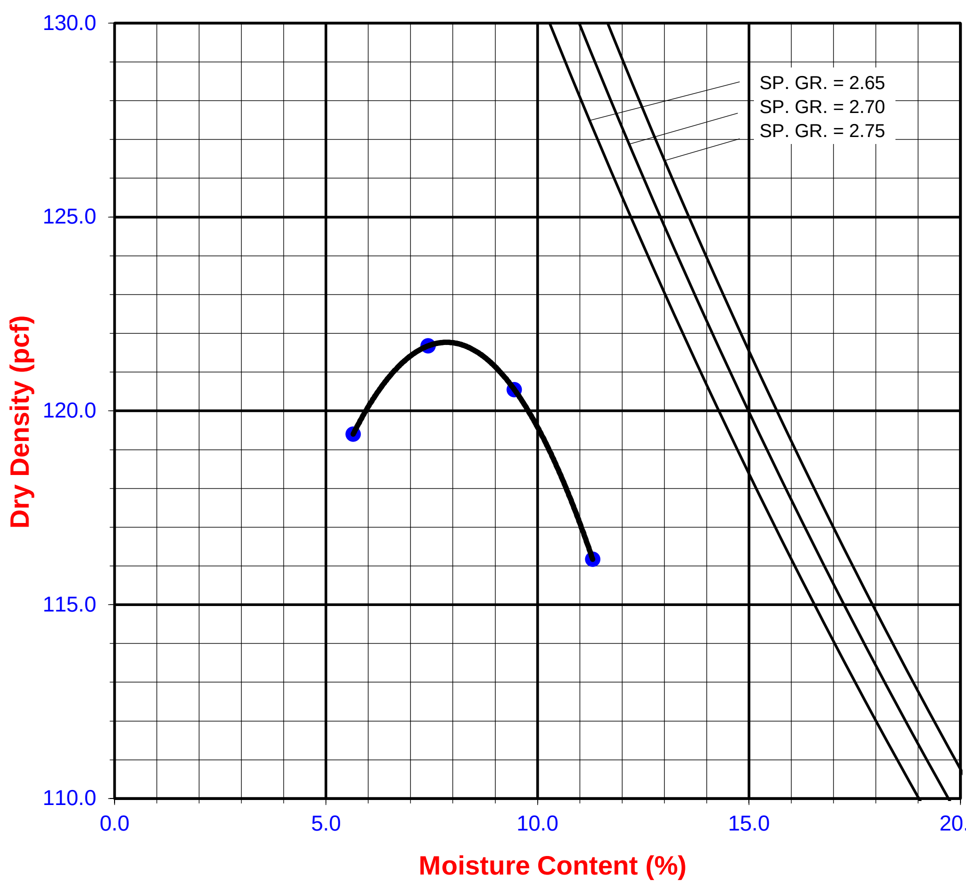
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



Compaction; P-1, B-1 (10-09-20)

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	FLM/MRV	Date:	10/21/20
Project No.:	12915.001	Input By:	M. Vinet	Date:	10/28/20
Boring No.:	P-6	Depth (ft.):	0 - 5.0		
Sample No.:	B-1				
Soil Identification:	Silty Sand (SM), Olive Brown.				

Preparation Method: [X] Moist [ ] Dry [X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340

Ram Weight = 10 lb.; Drop = 18 in.

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	5630	5723	5680			
Weight of Mold (g)	3559	3559	3559			
Net Weight of Soil (g)	2071	2164	2121			
Wet Weight of Soil + Cont. (g)	2345.7	2456.5	2446.5			
Dry Weight of Soil + Cont. (g)	2226.4	2292.6	2250.0			
Weight of Container (g)	332.8	332.7	338.7			
Moisture Content (%)	6.3	8.4	10.3			
Wet Density (pcf)	136.7	142.8	140.0			
Dry Density (pcf)	128.6	131.8	126.9			

Maximum Dry Density (pcf) **131.9** **Optimum Moisture Content (%)** **8.0**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

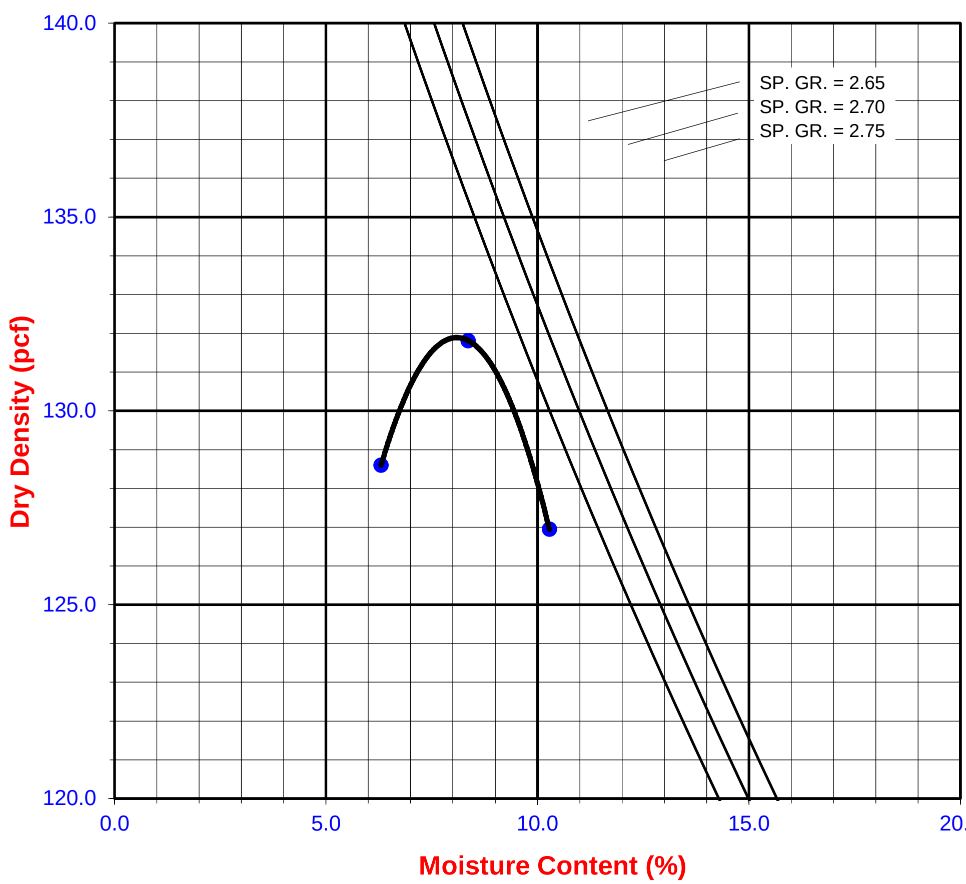
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



Compaction; P-6, B-1 (10-09-20)

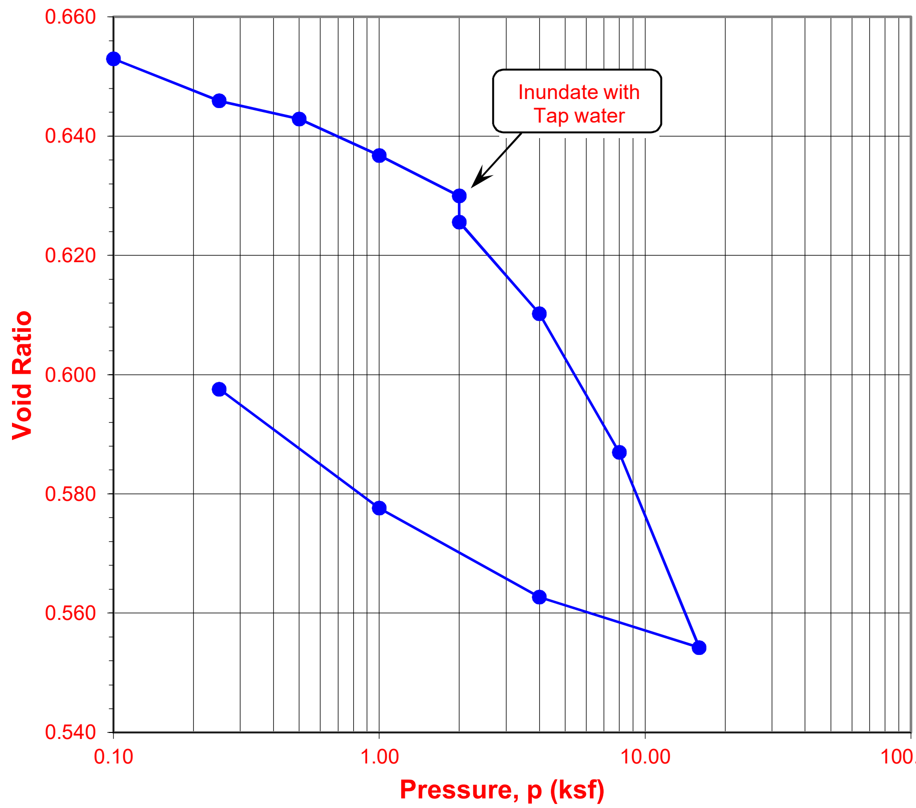
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	Riverside Arena	Tested By: GB/YN	Date: 10/15/20
Project No.:	12915.001	Checked By: A. Santos	Date: 10/26/20
Boring No.:	LB-1	Depth (ft.): 10.0	
Sample No.:	R-3	Sample Type:	Ring, Wet
Soil Identification:	Light olive brown silty sand (SM)		

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	176.63
Weight of Ring (g):	43.95
Height after consol. (in.):	0.9664
Before Test	
Wt. of Wet Sample+Cont. (g):	193.73
Wt. of Dry Sample+Cont. (g):	183.73
Weight of Container (g):	55.81
Initial Moisture Content (%)	7.8
Initial Dry Density (pcf)	102.3
Initial Saturation (%):	32
Initial Vertical Reading (in.)	0.1257
After Test	
Wt. of Wet Sample+Cont. (g):	267.41
Wt. of Dry Sample+Cont. (g):	241.84
Weight of Container (g):	77.78
Final Moisture Content (%)	21.29
Final Dry Density (pcf):	103.4
Final Saturation (%):	91
Final Vertical Reading (in.)	0.1623
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43

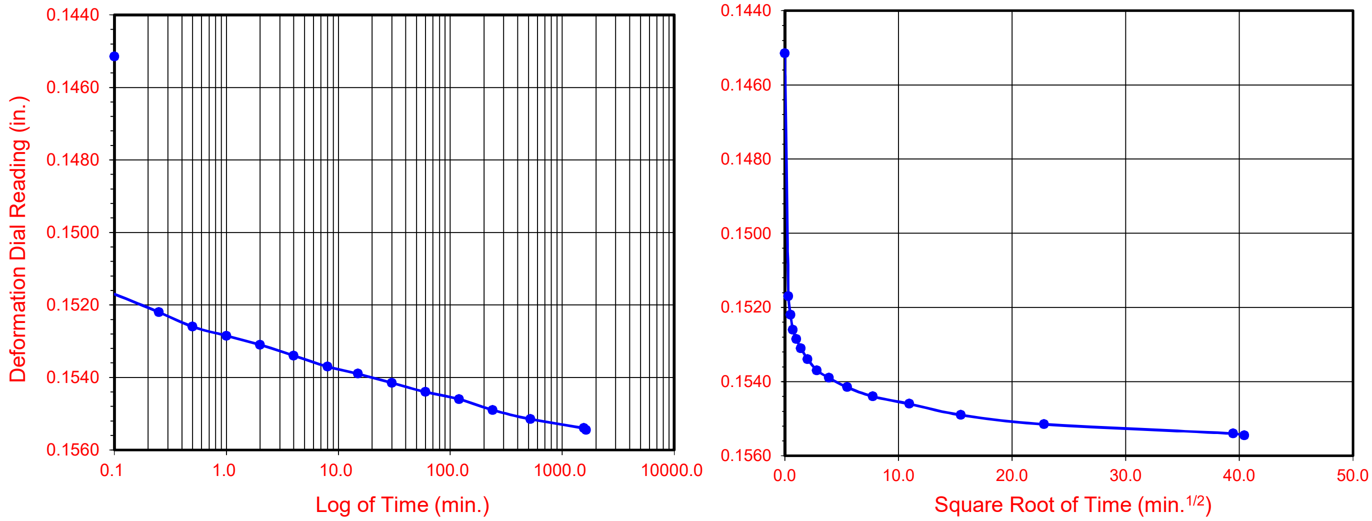


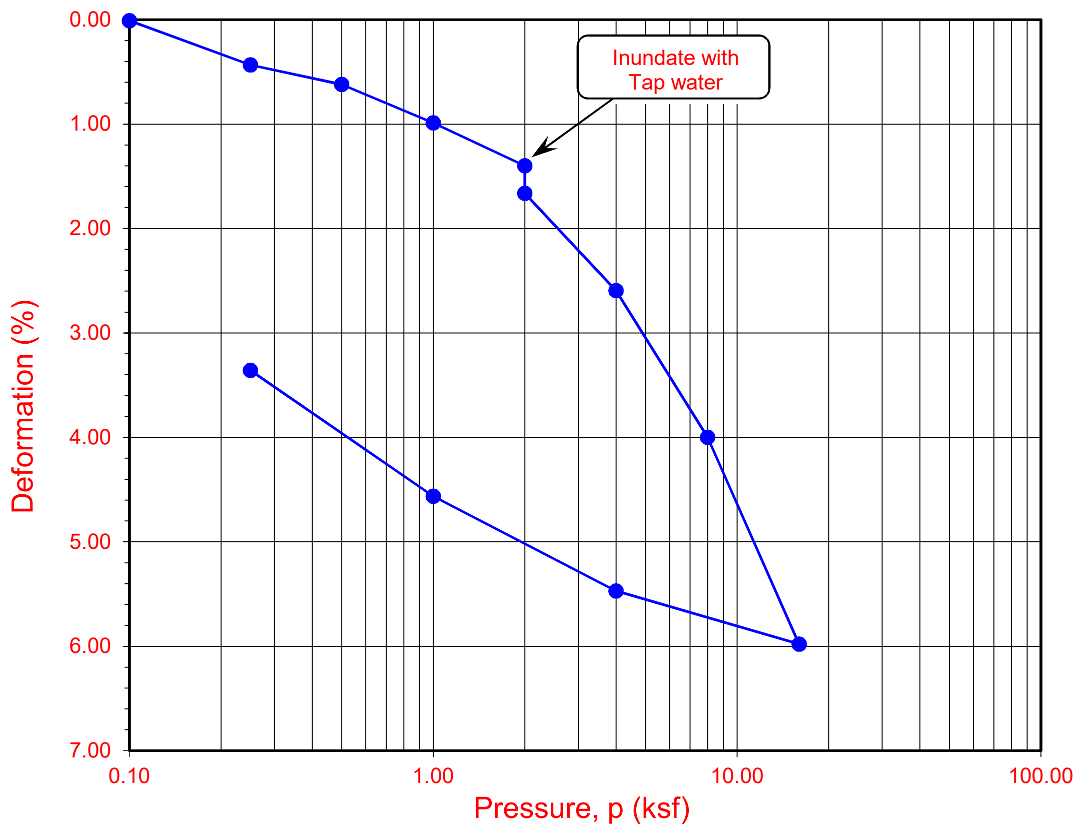
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1258	0.9999	0.00	0.01	0.653	0.01
0.25	0.1304	0.9954	0.03	0.47	0.646	0.44
0.50	0.1330	0.9927	0.11	0.73	0.643	0.62
1.00	0.1374	0.9883	0.18	1.17	0.637	0.99
2.00	0.1425	0.9832	0.28	1.68	0.630	1.40
2.00	0.1452	0.9806	0.28	1.95	0.626	1.67
4.00	0.1555	0.9703	0.38	2.97	0.610	2.59
8.00	0.1708	0.9549	0.51	4.51	0.587	4.00
16.00	0.1921	0.9336	0.66	6.64	0.554	5.98
4.00	0.1857	0.9400	0.53	6.00	0.563	5.47
1.00	0.1755	0.9503	0.41	4.98	0.578	4.57
0.25	0.1623	0.9634	0.30	3.66	0.598	3.36

Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/18/20	5:30:00	0.0	0.0	0.1452
10/18/20	5:30:06	0.1	0.3	0.1517
10/18/20	5:30:15	0.2	0.5	0.1522
10/18/20	5:30:30	0.5	0.7	0.1526
10/18/20	5:31:00	1.0	1.0	0.1529
10/18/20	5:32:00	2.0	1.4	0.1531
10/18/20	5:34:00	4.0	2.0	0.1534
10/18/20	5:38:00	8.0	2.8	0.1537
10/18/20	5:45:00	15.0	3.9	0.1539
10/18/20	6:00:00	30.0	5.5	0.1542
10/18/20	6:30:00	60.0	7.7	0.1544
10/18/20	7:30:00	120.0	11.0	0.1546
10/18/20	9:30:00	240.0	15.5	0.1549
10/18/20	14:10:00	520.0	22.8	0.1552
10/19/20	7:27:00	1557.0	39.5	0.1554
10/19/20	8:46:00	1636.0	40.4	0.1555

Time Readings @ 4.0 ksf





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**R-3**	**10**	**7.8**	**21.3**	**102.3**	**103.4**	**0.653**	**0.598**	**32**	**91**

Soil Identification: Light olive brown silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

10-20

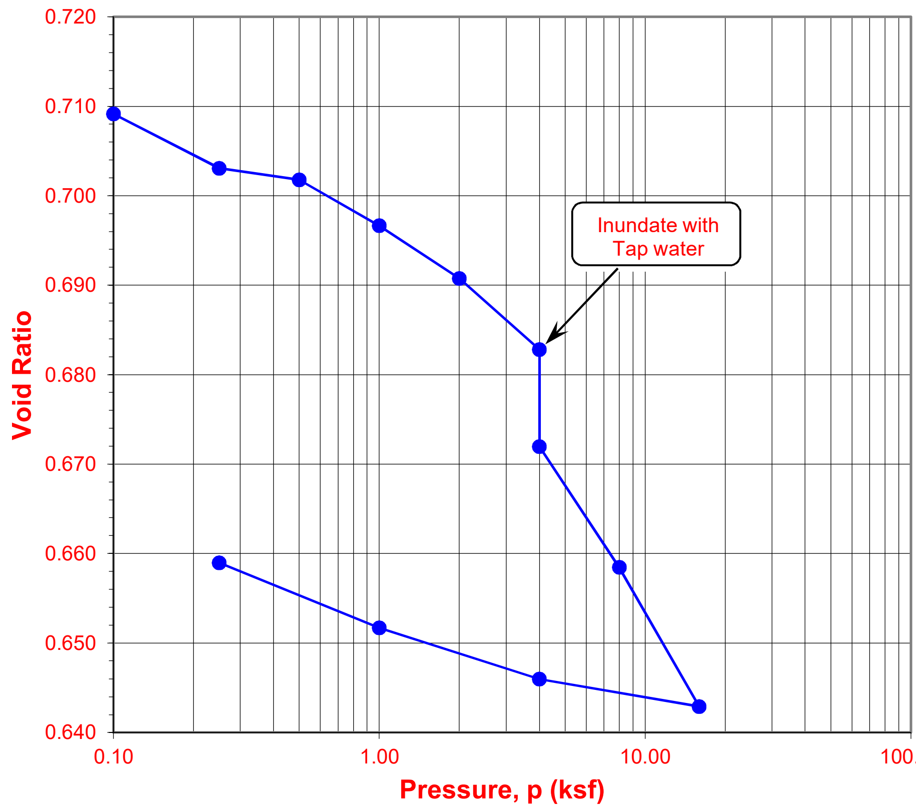
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Leighton

Project Name: Riverside Arena
Project No.: 12915.001
Boring No.: LB-1
Sample No.: R-4
Soil Identification: Olive gray silty sand (SM)

Tested By: GB/YN Date: 10/15/20
Checked By: A. Santos Date: 10/26/20
Depth (ft.): 12.0
Sample Type: Ring, Wet

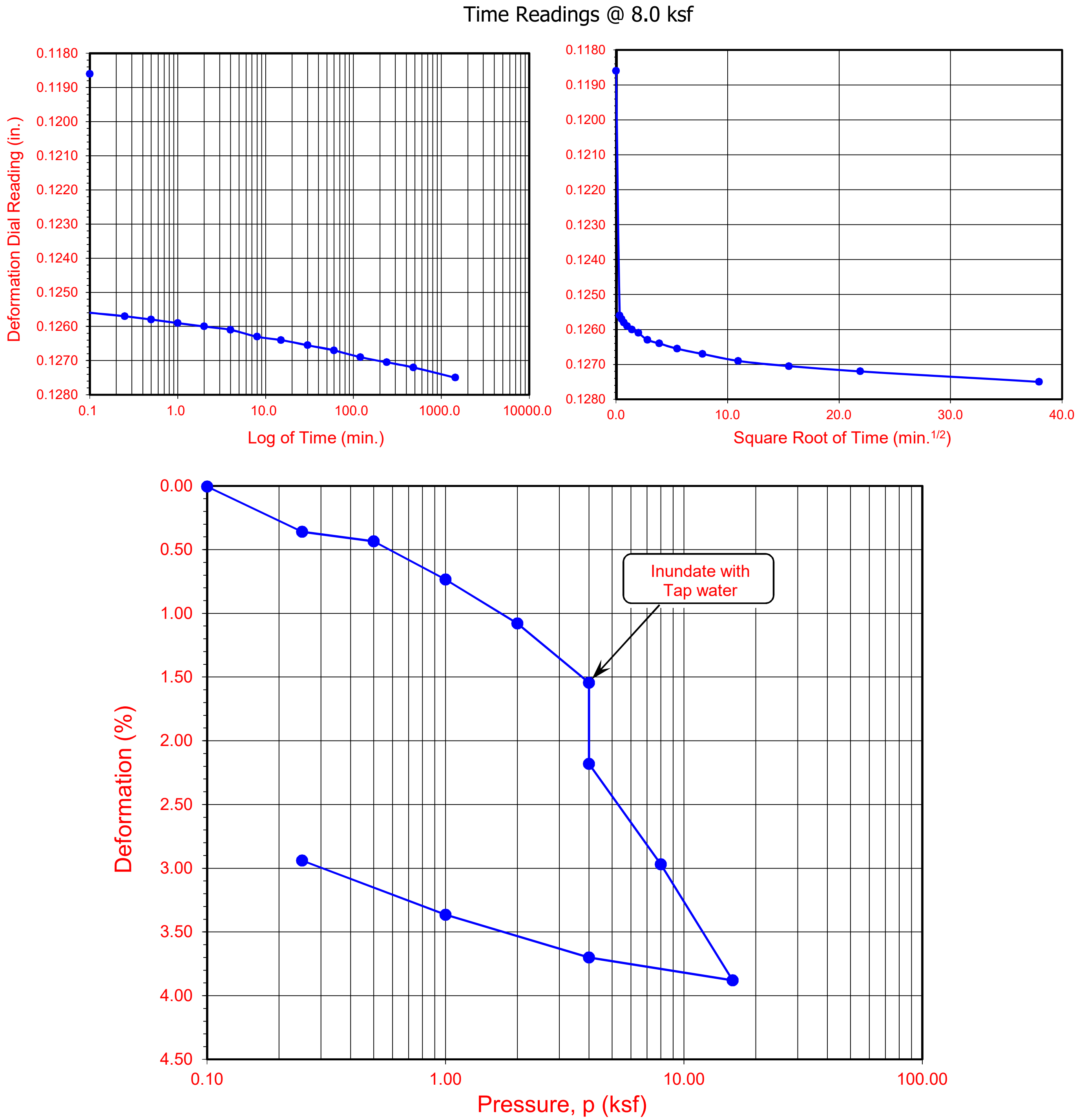
Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	166.63
Weight of Ring (g):	42.67
Height after consol. (in.):	0.9706
Before Test	
Wt. of Wet Sample+Cont. (g):	206.42
Wt. of Dry Sample+Cont. (g):	200.94
Weight of Container (g):	68.92
Initial Moisture Content (%)	4.2
Initial Dry Density (pcf)	99.0
Initial Saturation (%):	16
Initial Vertical Reading (in.)	0.0938
After Test	
Wt. of Wet Sample+Cont. (g):	224.98
Wt. of Dry Sample+Cont. (g):	200.93
Weight of Container (g):	38.39
Final Moisture Content (%)	20.06
Final Dry Density (pcf):	102.7
Final Saturation (%):	84
Final Vertical Reading (in.)	0.1250
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43



Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.0939	1.0000	0.00	0.00	0.709	0.00
0.25	0.0977	0.9961	0.03	0.39	0.703	0.36
0.50	0.0990	0.9949	0.08	0.51	0.702	0.43
1.00	0.1027	0.9912	0.15	0.89	0.697	0.74
2.00	0.1067	0.9871	0.21	1.29	0.691	1.08
4.00	0.1123	0.9816	0.30	1.85	0.683	1.55
4.00	0.1186	0.9752	0.30	2.48	0.672	2.18
8.00	0.1275	0.9663	0.40	3.37	0.658	2.97
16.00	0.1379	0.9559	0.53	4.41	0.643	3.88
4.00	0.1347	0.9591	0.39	4.09	0.646	3.70
1.00	0.1303	0.9636	0.28	3.65	0.652	3.37
0.25	0.1250	0.9688	0.18	3.12	0.659	2.94

Time Readings @ 8.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/19/20	7:45:00	0.0	0.0	0.1186
10/19/20	7:45:06	0.1	0.3	0.1256
10/19/20	7:45:15	0.2	0.5	0.1257
10/19/20	7:45:30	0.5	0.7	0.1258
10/19/20	7:46:00	1.0	1.0	0.1259
10/19/20	7:47:00	2.0	1.4	0.1260
10/19/20	7:49:00	4.0	2.0	0.1261
10/19/20	7:53:00	8.0	2.8	0.1263
10/19/20	8:00:00	15.0	3.9	0.1264
10/19/20	8:15:00	30.0	5.5	0.1266
10/19/20	8:45:00	60.0	7.7	0.1267
10/19/20	9:45:00	120.0	11.0	0.1269
10/19/20	11:45:00	240.0	15.5	0.1271
10/19/20	15:45:00	480.0	21.9	0.1272
10/20/20	7:45:00	1440.0	37.9	0.1275



Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**R-4**	**12**	**4.2**	**20.1**	**99.0**	**102.7**	**0.709**	**0.659**	**16**	**84**

Soil Identification: Olive gray silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

10-20

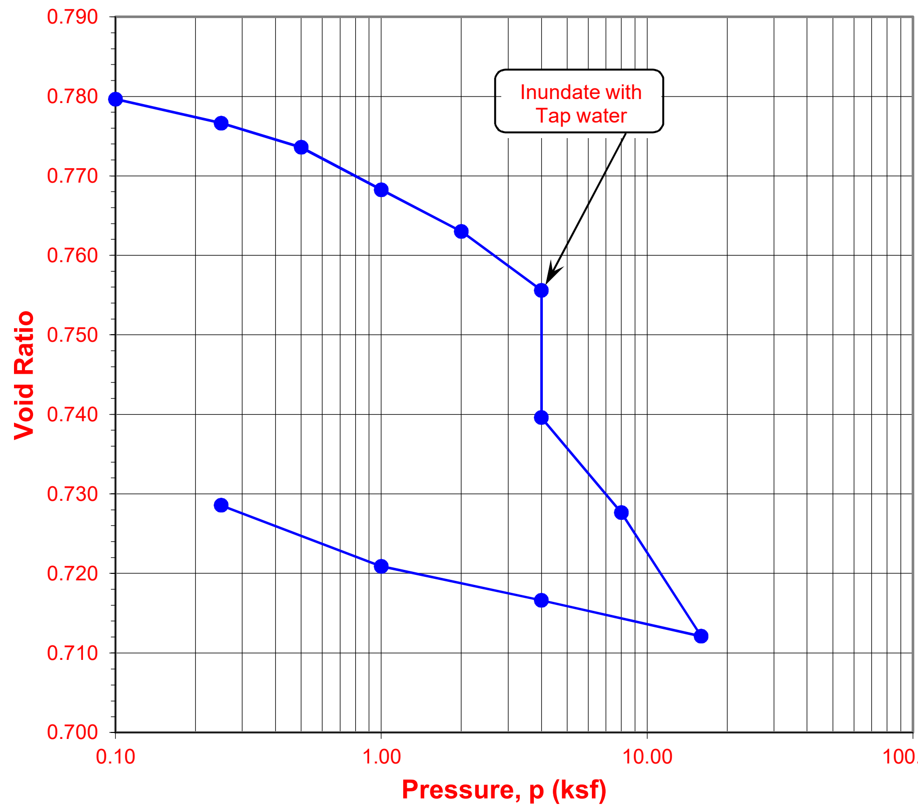
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	Riverside Arena	Tested By: GB/YN	Date: 10/15/20
Project No.:	12915.001	Checked By: A. Santos	Date: 10/26/20
Boring No.:	LB-1	Depth (ft.): 15.0	
Sample No.:	R-5	Sample Type:	Ring
Soil Identification:	Olive gray silty sand (SM)		

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	156.57
Weight of Ring (g):	40.45
Height after consol. (in.):	0.9712
Before Test	
Wt. of Wet Sample+Cont. (g):	141.20
Wt. of Dry Sample+Cont. (g):	139.59
Weight of Container (g):	38.57
Initial Moisture Content (%)	1.6
Initial Dry Density (pcf)	95.1
Initial Saturation (%):	6
Initial Vertical Reading (in.)	0.1160
After Test	
Wt. of Wet Sample+Cont. (g):	214.69
Wt. of Dry Sample+Cont. (g):	189.20
Weight of Container (g):	36.58
Final Moisture Content (%)	22.72
Final Dry Density (pcf):	96.1
Final Saturation (%):	81
Final Vertical Reading (in.)	0.1474
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43

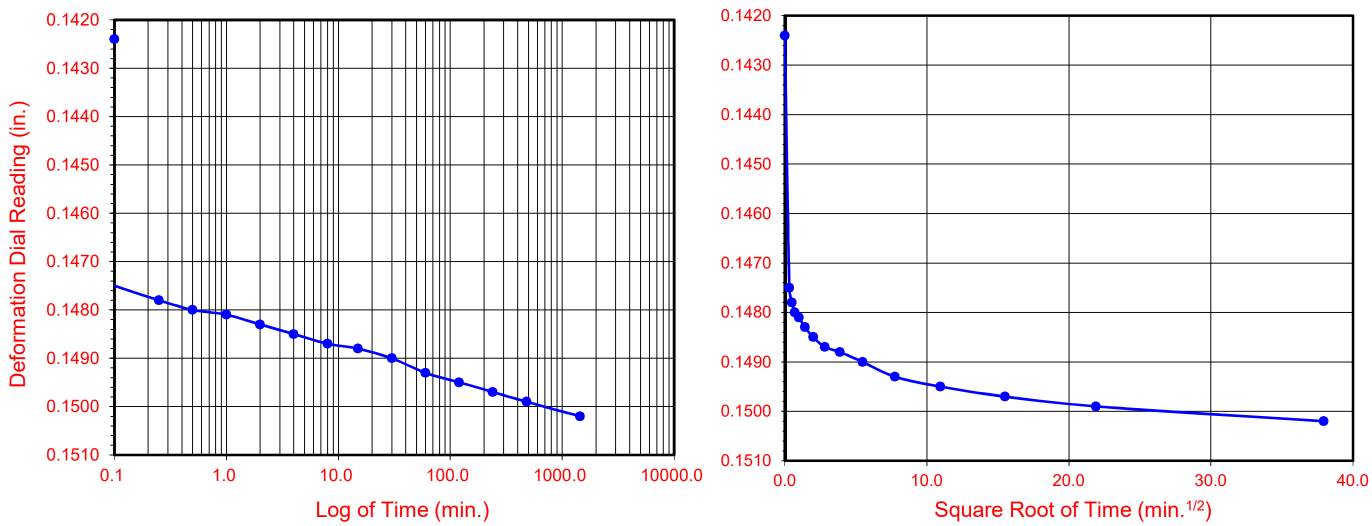


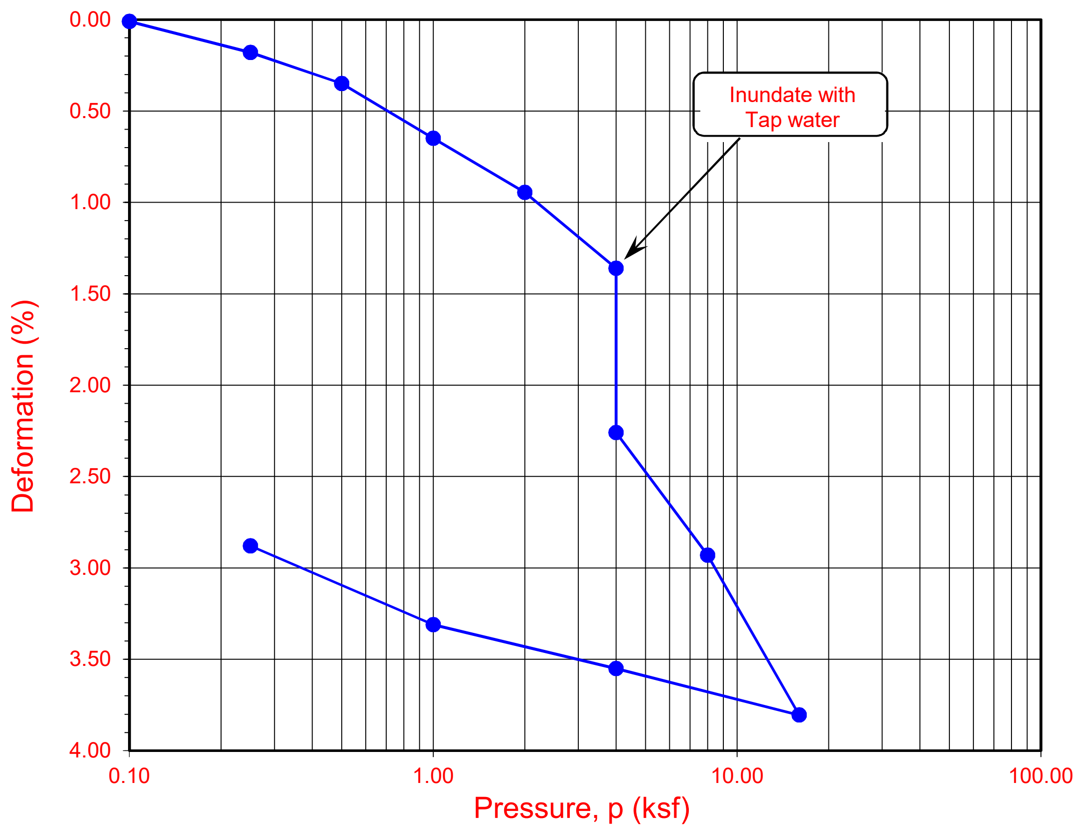
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1161	0.9999	0.00	0.01	0.780	0.01
0.25	0.1182	0.9978	0.04	0.22	0.777	0.18
0.50	0.1204	0.9956	0.09	0.44	0.774	0.35
1.00	0.1241	0.9919	0.16	0.81	0.768	0.65
2.00	0.1282	0.9879	0.27	1.22	0.763	0.94
4.00	0.1334	0.9826	0.38	1.74	0.756	1.36
4.00	0.1424	0.9736	0.38	2.64	0.740	2.26
8.00	0.1502	0.9658	0.49	3.42	0.728	2.93
16.00	0.1604	0.9557	0.63	4.44	0.712	3.81
4.00	0.1566	0.9594	0.51	4.06	0.717	3.55
1.00	0.1528	0.9632	0.37	3.68	0.721	3.31
0.25	0.1474	0.9686	0.26	3.14	0.729	2.88

Time Readings @ 8.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/19/20	7:50:00	0.0	0.0	0.1424
10/19/20	7:50:06	0.1	0.3	0.1475
10/19/20	7:50:15	0.2	0.5	0.1478
10/19/20	7:50:30	0.5	0.7	0.1480
10/19/20	7:51:00	1.0	1.0	0.1481
10/19/20	7:52:00	2.0	1.4	0.1483
10/19/20	7:54:00	4.0	2.0	0.1485
10/19/20	7:58:00	8.0	2.8	0.1487
10/19/20	8:05:00	15.0	3.9	0.1488
10/19/20	8:20:00	30.0	5.5	0.1490
10/19/20	8:50:00	60.0	7.7	0.1493
10/19/20	9:50:00	120.0	11.0	0.1495
10/19/20	11:50:00	240.0	15.5	0.1497
10/19/20	15:50:00	480.0	21.9	0.1499
10/20/20	7:50:00	1440.0	37.9	0.1502

Time Readings @ 8.0 ksf





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**R-5**	**15**	**1.6**	**22.7**	**95.1**	**96.1**	**0.780**	**0.729**	**6**	**81**

Soil Identification: Olive gray silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

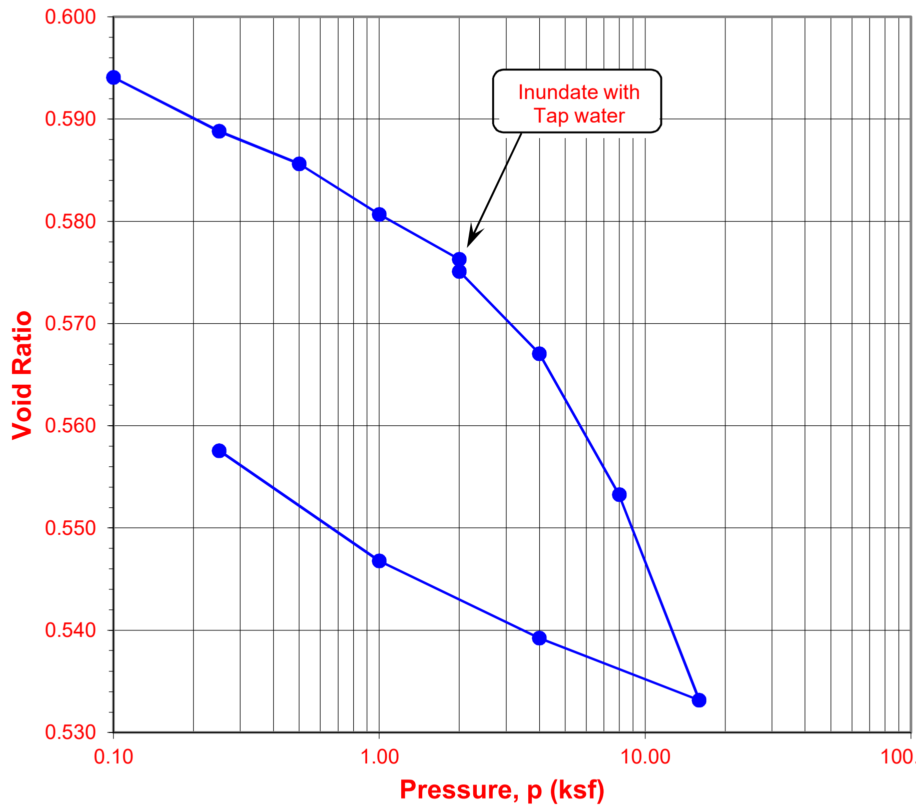
10-20

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Leighton

Project Name:	Riverside Arena	Tested By: GB/YN	Date:	10/16/20
Project No.:	12915.001	Checked By: A. Santos	Date:	10/26/20
Boring No.:	LB-4	Depth (ft.): 7.0		
Sample No.:	R-2	Sample Type:	Ring, Wet	
Soil Identification:	Light olive brown silty sand (SM)			

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	178.41
Weight of Ring (g):	43.74
Height after consol. (in.):	0.9770
Before Test	
Wt. of Wet Sample+Cont. (g):	181.02
Wt. of Dry Sample+Cont. (g):	174.53
Weight of Container (g):	57.31
Initial Moisture Content (%)	5.5
Initial Dry Density (pcf)	106.1
Initial Saturation (%):	25
Initial Vertical Reading (in.)	0.1732
After Test	
Wt. of Wet Sample+Cont. (g):	254.50
Wt. of Dry Sample+Cont. (g):	231.45
Weight of Container (g):	62.61
Final Moisture Content (%)	18.43
Final Dry Density (pcf):	106.5
Final Saturation (%):	85
Final Vertical Reading (in.)	0.1988
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43

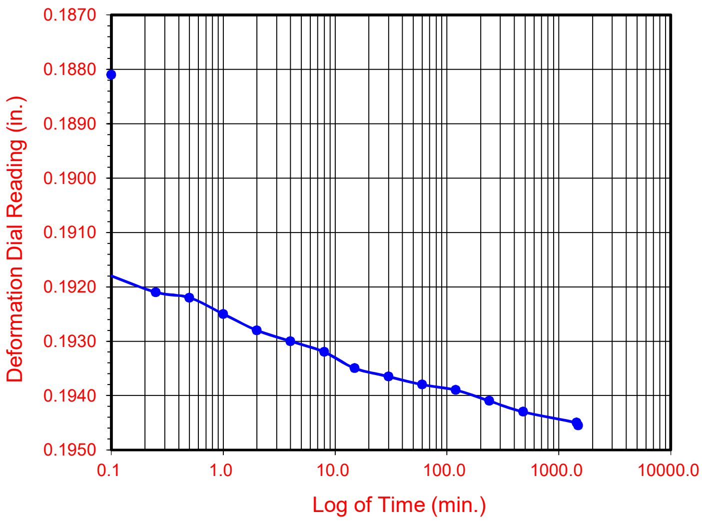


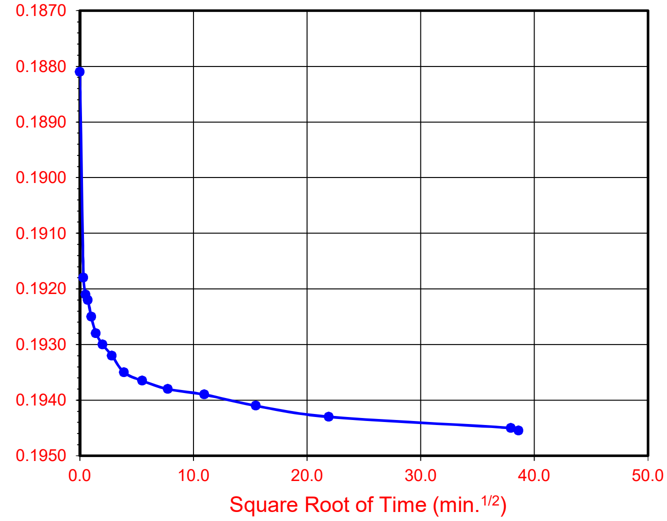
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1733	0.9999	0.00	0.01	0.594	0.01
0.25	0.1769	0.9963	0.03	0.37	0.589	0.34
0.50	0.1794	0.9938	0.08	0.62	0.586	0.54
1.00	0.1833	0.9899	0.16	1.01	0.581	0.85
2.00	0.1874	0.9859	0.29	1.42	0.576	1.13
2.00	0.1881	0.9851	0.29	1.49	0.575	1.20
4.00	0.1946	0.9787	0.43	2.14	0.567	1.71
8.00	0.2049	0.9683	0.60	3.17	0.553	2.57
16.00	0.2195	0.9537	0.80	4.63	0.533	3.83
4.00	0.2133	0.9599	0.56	4.01	0.539	3.45
1.00	0.2068	0.9665	0.38	3.36	0.547	2.98
0.25	0.1988	0.9744	0.26	2.56	0.558	2.30

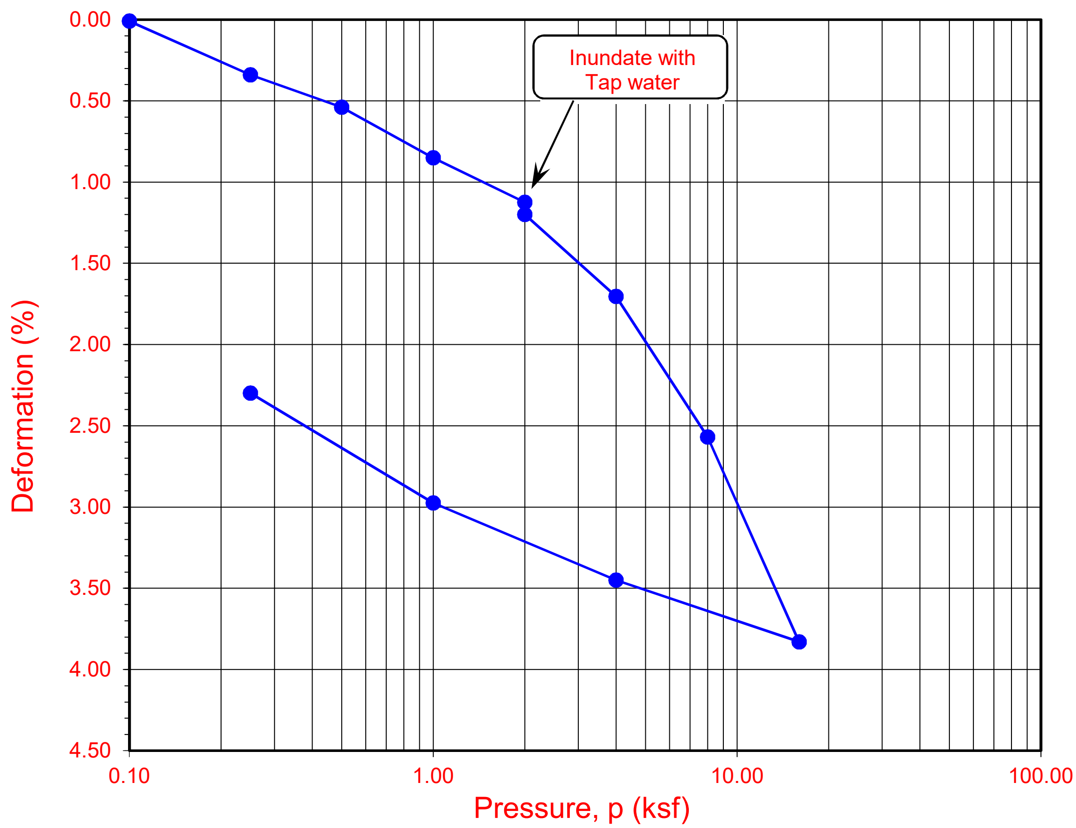
Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/19/20	8:00:00	0.0	0.0	0.1881
10/19/20	8:00:06	0.1	0.3	0.1918
10/19/20	8:00:15	0.2	0.5	0.1921
10/19/20	8:00:30	0.5	0.7	0.1922
10/19/20	8:01:00	1.0	1.0	0.1925
10/19/20	8:02:00	2.0	1.4	0.1928
10/19/20	8:04:00	4.0	2.0	0.1930
10/19/20	8:08:00	8.0	2.8	0.1932
10/19/20	8:15:00	15.0	3.9	0.1935
10/19/20	8:30:00	30.0	5.5	0.1937
10/19/20	9:00:00	60.0	7.7	0.1938
10/19/20	10:00:00	120.0	11.0	0.1939
10/19/20	12:00:00	240.0	15.5	0.1941
10/19/20	16:00:00	480.0	21.9	0.1943
10/20/20	8:00:00	1440.0	37.9	0.1945
10/20/20	8:51:00	1491.0	38.6	0.1946

Time Readings @ 4.0 ksf







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-4	**R-2**	**7**	**5.5**	**18.4**	**106.1**	**106.5**	**0.594**	**0.558**	**25**	**85**

Soil Identification: Light olive brown silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

10-20

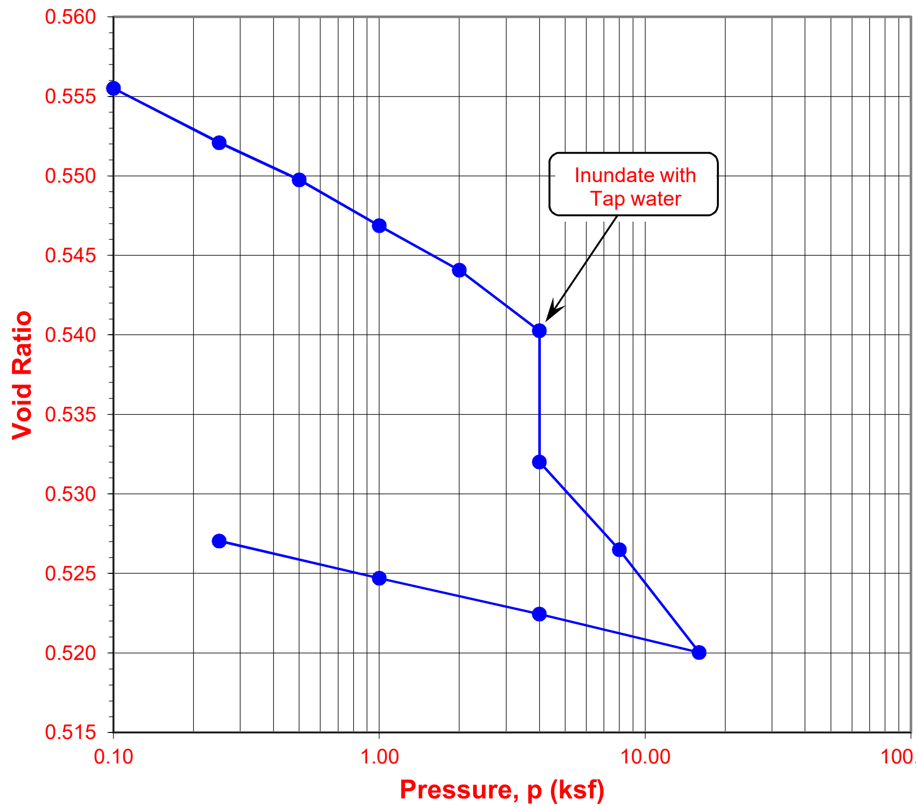
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	Riverside Arena	Tested By: GB/YN	Date: 10/16/20
Project No.:	12915.001	Checked By: A. Santos	Date: 10/26/20
Boring No.:	LB-4	Depth (ft.): 10.0	
Sample No.:	R-3	Sample Type:	Ring, Wet
Soil Identification:	Light olive brown silty sand (SM)		

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	175.89
Weight of Ring (g):	41.95
Height after consol. (in.):	0.9814
Before Test	
Wt. of Wet Sample+Cont. (g):	188.37
Wt. of Dry Sample+Cont. (g):	185.75
Weight of Container (g):	78.64
Initial Moisture Content (%)	2.4
Initial Dry Density (pcf)	108.7
Initial Saturation (%):	12
Initial Vertical Reading (in.)	0.1053
After Test	
Wt. of Wet Sample+Cont. (g):	255.11
Wt. of Dry Sample+Cont. (g):	233.61
Weight of Container (g):	61.22
Final Moisture Content (%)	16.48
Final Dry Density (pcf):	110.5
Final Saturation (%):	84
Final Vertical Reading (in.)	0.1272
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43

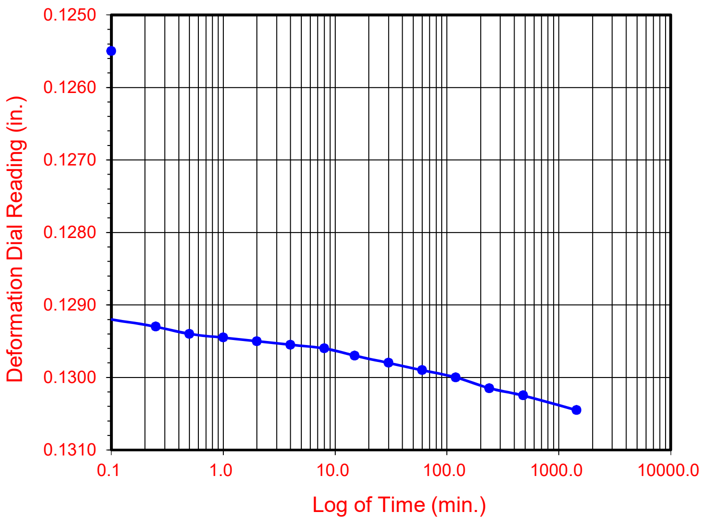


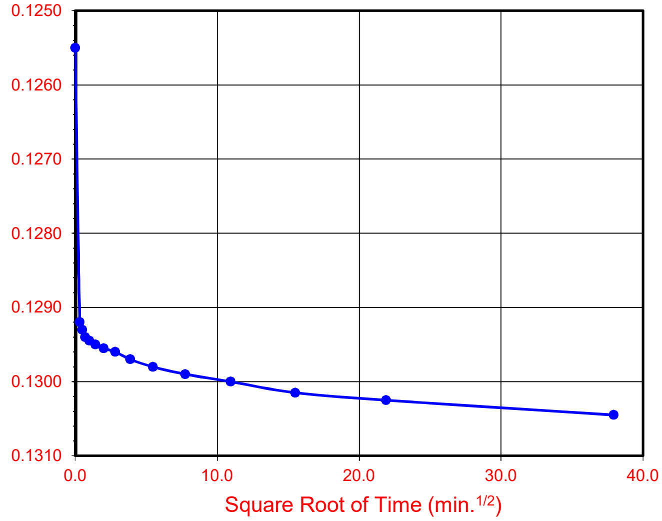
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1056	0.9997	0.00	0.03	0.556	0.03
0.25	0.1084	0.9969	0.06	0.31	0.552	0.25
0.50	0.1106	0.9947	0.13	0.53	0.550	0.40
1.00	0.1135	0.9919	0.23	0.81	0.547	0.58
2.00	0.1165	0.9889	0.35	1.12	0.544	0.76
4.00	0.1202	0.9851	0.48	1.49	0.540	1.01
4.00	0.1255	0.9798	0.48	2.02	0.532	1.54
8.00	0.1305	0.9749	0.62	2.52	0.526	1.90
16.00	0.1360	0.9693	0.76	3.07	0.520	2.31
4.00	0.1330	0.9724	0.61	2.77	0.522	2.16
1.00	0.1299	0.9754	0.45	2.46	0.525	2.01
0.25	0.1272	0.9781	0.33	2.19	0.527	1.86

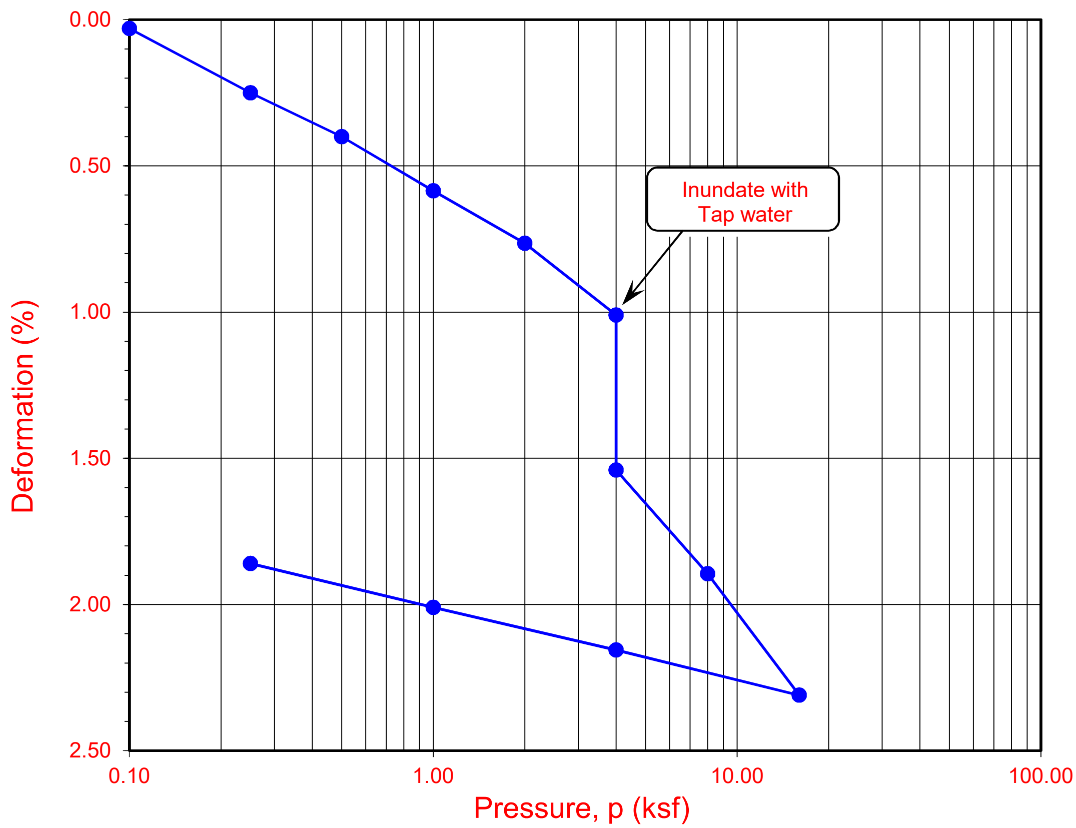
Time Readings @ 8.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/20/20	7:30:00	0.0	0.0	0.1255
10/20/20	7:30:06	0.1	0.3	0.1292
10/20/20	7:30:15	0.2	0.5	0.1293
10/20/20	7:30:30	0.5	0.7	0.1294
10/20/20	7:31:00	1.0	1.0	0.1295
10/20/20	7:32:00	2.0	1.4	0.1295
10/20/20	7:34:00	4.0	2.0	0.1296
10/20/20	7:38:00	8.0	2.8	0.1296
10/20/20	7:45:00	15.0	3.9	0.1297
10/20/20	8:00:00	30.0	5.5	0.1298
10/20/20	8:30:00	60.0	7.7	0.1299
10/20/20	9:30:00	120.0	11.0	0.1300
10/20/20	11:30:00	240.0	15.5	0.1302
10/20/20	15:30:00	480.0	21.9	0.1303
10/21/20	7:30:00	1440.0	37.9	0.1305

Time Readings @ 8.0 ksf







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-4	**R-3**	**10**	**2.4**	**16.5**	**108.7**	**110.5**	**0.556**	**0.527**	**12**	**84**

Soil Identification: Light olive brown silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

10-20

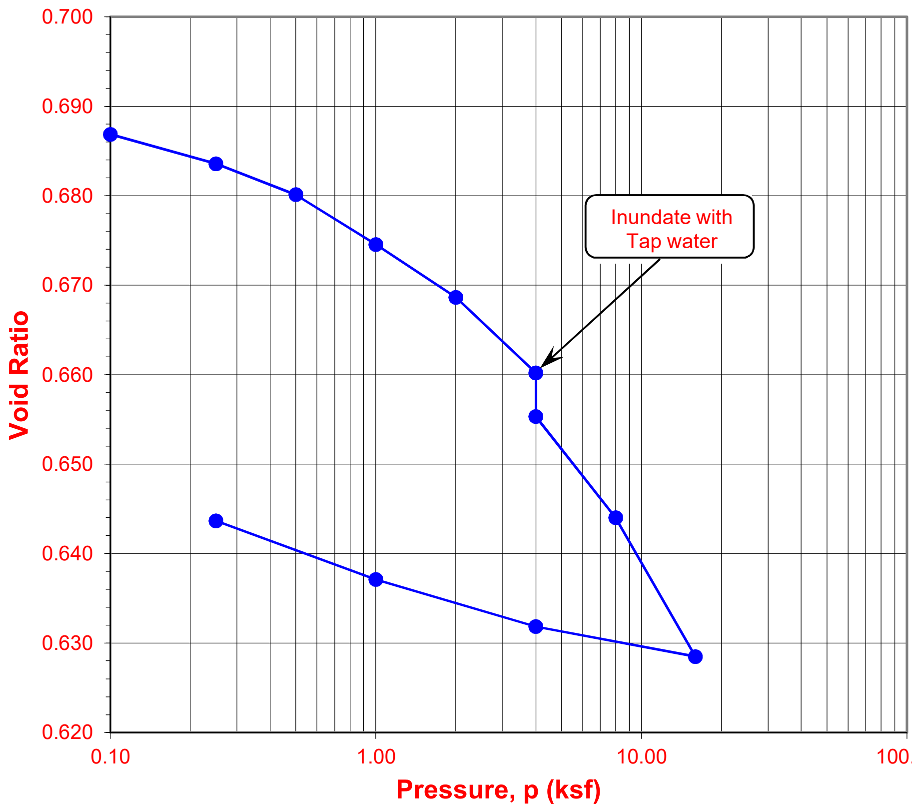
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	Riverside Arena	Tested By: GB/YN	Date:	10/16/20
Project No.:	12915.001	Checked By: A. Santos	Date:	10/26/20
Boring No.:	LB-4	Depth (ft.): 15.0		
Sample No.:	R-5	Sample Type:	Ring	
Soil Identification:	Light olive brown silty sand (SM)			

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	167.00
Weight of Ring (g):	42.09
Height after consol. (in.):	0.9742
Before Test	
Wt. of Wet Sample+Cont. (g):	172.44
Wt. of Dry Sample+Cont. (g):	168.52
Weight of Container (g):	59.54
Initial Moisture Content (%)	3.6
Initial Dry Density (pcf)	100.3
Initial Saturation (%):	14
Initial Vertical Reading (in.)	0.1242
After Test	
Wt. of Wet Sample+Cont. (g):	246.13
Wt. of Dry Sample+Cont. (g):	221.31
Weight of Container (g):	59.82
Final Moisture Content (%)	20.79
Final Dry Density (pcf):	101.9
Final Saturation (%):	85
Final Vertical Reading (in.)	0.1519
Specific Gravity (assumed):	2.71
Water Density (pcf):	62.43

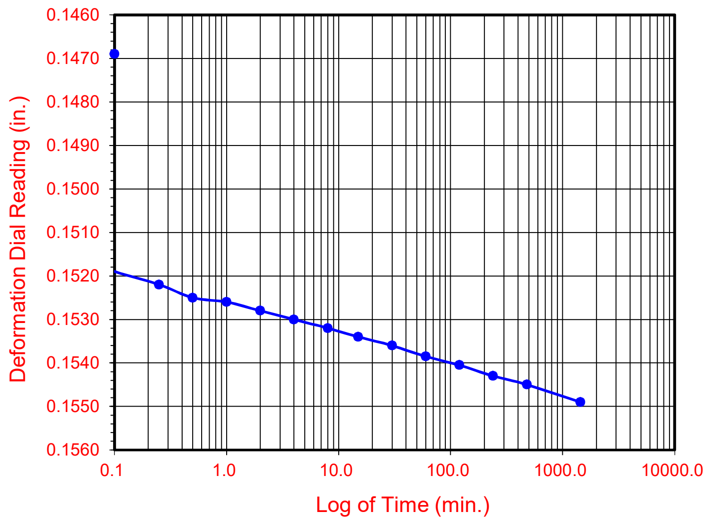


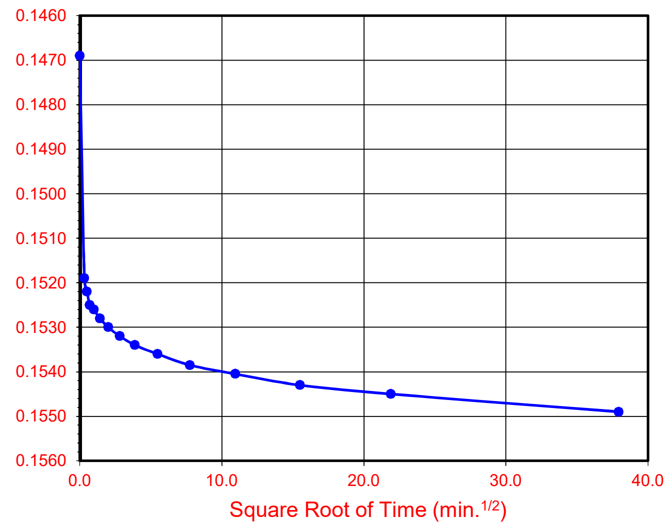
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.1244	0.9998	0.00	0.02	0.687	0.02
0.25	0.1269	0.9974	0.05	0.27	0.684	0.22
0.50	0.1295	0.9947	0.11	0.53	0.680	0.42
1.00	0.1335	0.9907	0.18	0.93	0.675	0.75
2.00	0.1380	0.9862	0.28	1.38	0.669	1.10
4.00	0.1440	0.9802	0.38	1.98	0.660	1.60
4.00	0.1469	0.9773	0.38	2.27	0.655	1.89
8.00	0.1549	0.9693	0.51	3.07	0.644	2.56
16.00	0.1655	0.9587	0.65	4.13	0.628	3.48
4.00	0.1618	0.9624	0.48	3.76	0.632	3.28
1.00	0.1572	0.9670	0.33	3.30	0.637	2.97
0.25	0.1519	0.9723	0.19	2.77	0.644	2.58

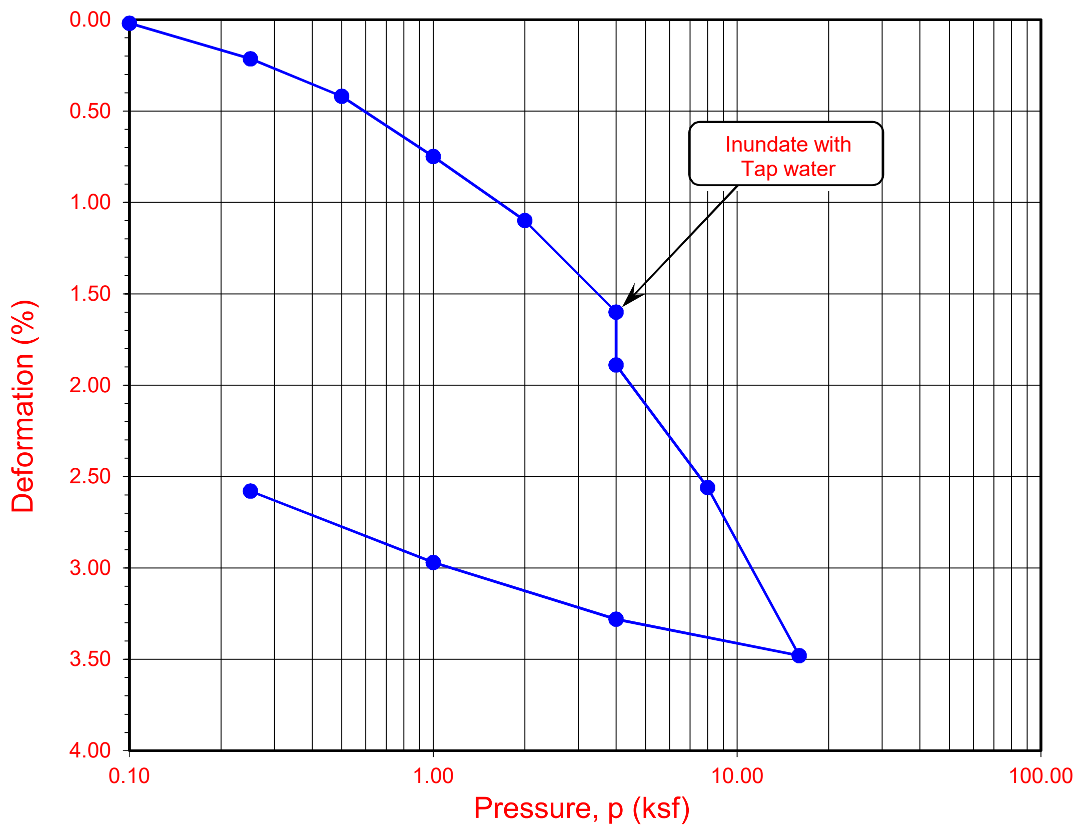
Time Readings @ 8.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/20/20	7:35:00	0.0	0.0	0.1469
10/20/20	7:35:06	0.1	0.3	0.1519
10/20/20	7:35:15	0.2	0.5	0.1522
10/20/20	7:35:30	0.5	0.7	0.1525
10/20/20	7:36:00	1.0	1.0	0.1526
10/20/20	7:37:00	2.0	1.4	0.1528
10/20/20	7:39:00	4.0	2.0	0.1530
10/20/20	7:43:00	8.0	2.8	0.1532
10/20/20	7:50:00	15.0	3.9	0.1534
10/20/20	8:05:00	30.0	5.5	0.1536
10/20/20	8:35:00	60.0	7.7	0.1539
10/20/20	9:35:00	120.0	11.0	0.1541
10/20/20	11:35:00	240.0	15.5	0.1543
10/20/20	15:35:00	480.0	21.9	0.1545
10/21/20	7:35:00	1440.0	37.9	0.1549

Time Readings @ 8.0 ksf







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-4	**R-5**	**15**	**3.6**	**20.8**	**100.3**	**101.9**	**0.687**	**0.644**	**14**	**85**

Soil Identification: Light olive brown silty sand (SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

Riverside Arena

10-20

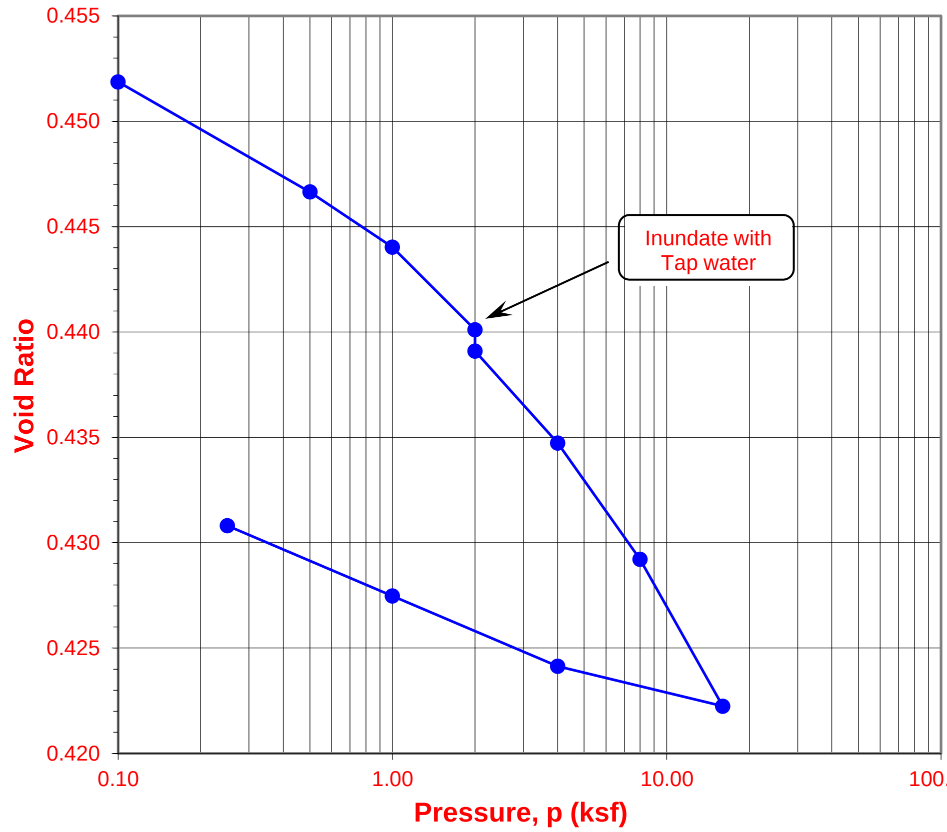
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By: M. Vinet	Date: 10/21/20
Project No.:	12915.001	Checked By: M. Vinet	Date: 10/28/20
Boring No.:	LB-1	Depth (ft.): 0 - 5.0	
Sample No.:	B-1	Sample Type: 90% Remold	
Soil Identification:	Silty Sand (SM), Olive Brown.		

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	194.40
Weight of Ring (g):	45.80
Height after consol. (in.):	0.9853
Before Test	
Wt. of Wet Sample+Cont. (g):	122.88
Wt. of Dry Sample+Cont. (g):	118.51
Weight of Container (g):	50.02
Initial Moisture Content (%)	6.4
Initial Dry Density (pcf)	116.1
Initial Saturation (%):	38
Initial Vertical Reading (in.)	0.0000
After Test	
Wt. of Wet Sample+Cont. (g):	255.06
Wt. of Dry Sample+Cont. (g):	233.68
Weight of Container (g):	50.42
Final Moisture Content (%)	15.55
Final Dry Density (pcf):	115.9
Final Saturation (%):	93
Final Vertical Reading (in.)	0.0147
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

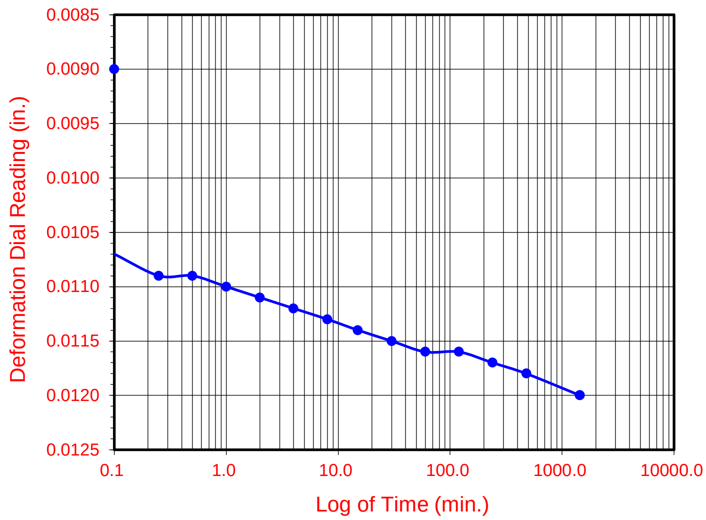


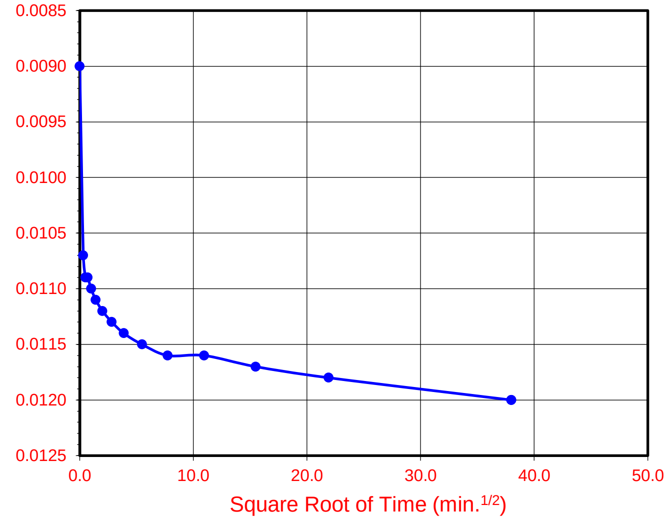
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.0002	0.9998	0.00	0.02	0.452	0.02
0.50	0.0038	0.9962	0.00	0.38	0.447	0.38
1.00	0.0056	0.9944	0.00	0.56	0.444	0.56
2.00	0.0083	0.9917	0.00	0.83	0.440	0.83
2.00	0.0090	0.9910	0.00	0.90	0.439	0.90
4.00	0.0120	0.9880	0.00	1.20	0.435	1.20
8.00	0.0158	0.9842	0.00	1.58	0.429	1.58
16.00	0.0206	0.9794	0.00	2.06	0.422	2.06
4.00	0.0193	0.9807	0.00	1.93	0.424	1.93
1.00	0.0170	0.9830	0.00	1.70	0.427	1.70
0.25	0.0147	0.9853	0.00	1.47	0.431	1.47

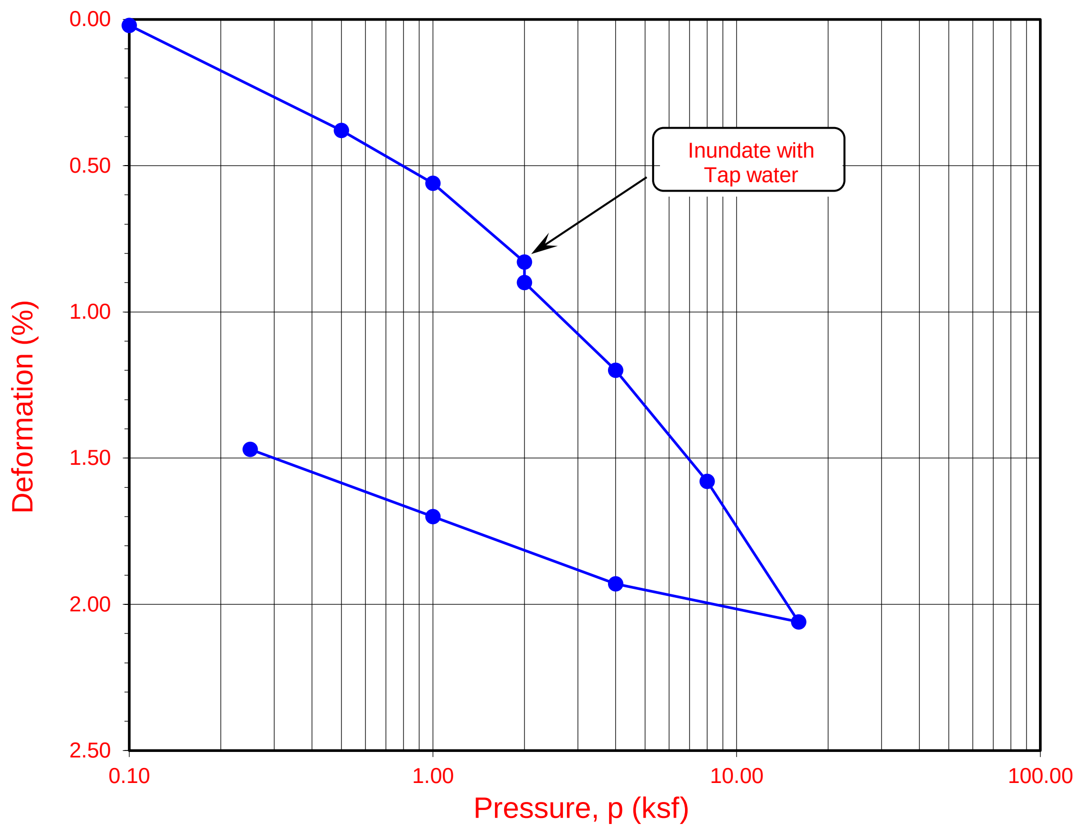
Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/26/20	7:00:00	0.0	0.0	0.0090
10/26/20	7:00:06	0.1	0.3	0.0107
10/26/20	7:00:15	0.2	0.5	0.0109
10/26/20	7:00:30	0.5	0.7	0.0109
10/26/20	7:01:00	1.0	1.0	0.0110
10/26/20	7:02:00	2.0	1.4	0.0111
10/26/20	7:04:00	4.0	2.0	0.0112
10/26/20	7:08:00	8.0	2.8	0.0113
10/26/20	7:15:00	15.0	3.9	0.0114
10/26/20	7:30:00	30.0	5.5	0.0115
10/26/20	8:00:00	60.0	7.7	0.0116
10/26/20	9:00:00	120.0	11.0	0.0116
10/26/20	11:00:00	240.0	15.5	0.0117
10/26/20	15:00:00	480.0	21.9	0.0118
10/27/20	7:03:00	1443.0	38.0	0.0120
10/27/20	7:03:00	1443.0	38.0	0.0120

Time Readings @ 4.0 ksf







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**B-1**	**0 - 5.0**	**6.4**	**15.6**	**116.1**	**115.9**	**0.452**	**0.431**	**38**	**93**

Soil Identification: Silty Sand (SM), Olive Brown.

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

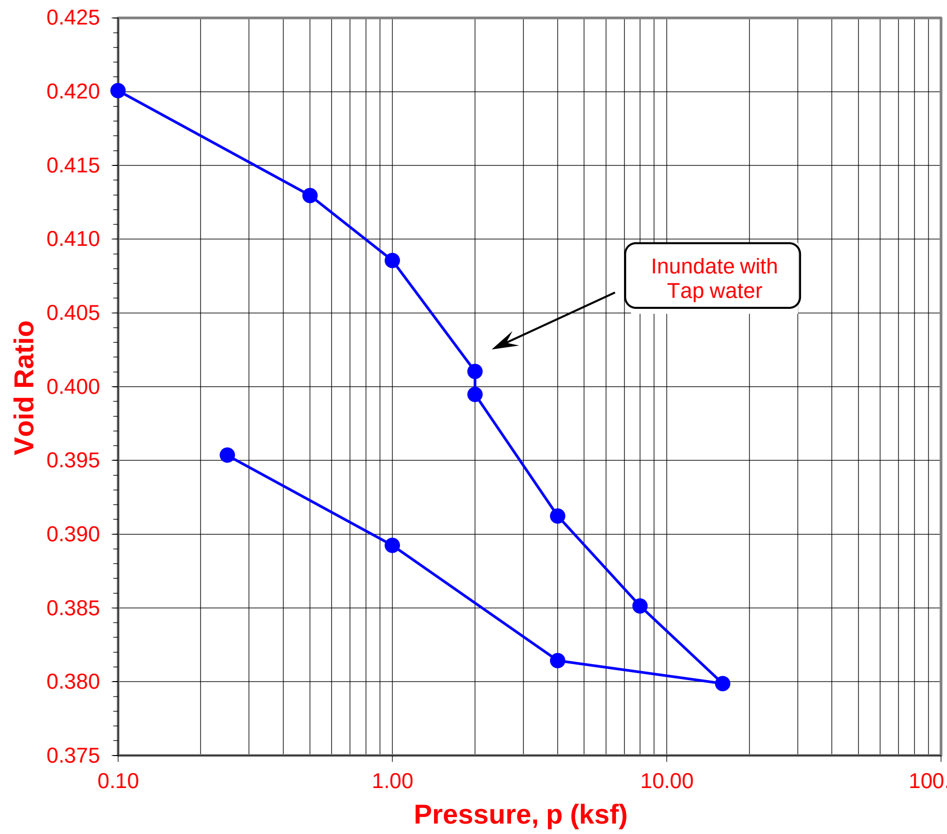
10-20

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By: M. Vinet	Date: 10/21/20
Project No.:	12915.001	Checked By: M. Vinet	Date: 10/28/20
Boring No.:	LB-4	Depth (ft.): 0 - 5.0	
Sample No.:	B-1	Sample Type:	90% Remold
Soil Identification:	Silty Sand (SM), Olive Brown.		

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	198.70
Weight of Ring (g):	45.40
Height after consol. (in.):	0.9825
Before Test	
Wt. of Wet Sample+Cont. (g):	153.30
Wt. of Dry Sample+Cont. (g):	142.83
Weight of Container (g):	0.00
Initial Moisture Content (%)	7.3
Initial Dry Density (pcf)	118.7
Initial Saturation (%):	47
Initial Vertical Reading (in.)	0.0000
After Test	
Wt. of Wet Sample+Cont. (g):	255.97
Wt. of Dry Sample+Cont. (g):	238.33
Weight of Container (g):	50.07
Final Moisture Content (%)	12.35
Final Dry Density (pcf):	120.8
Final Saturation (%):	84
Final Vertical Reading (in.)	0.0175
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

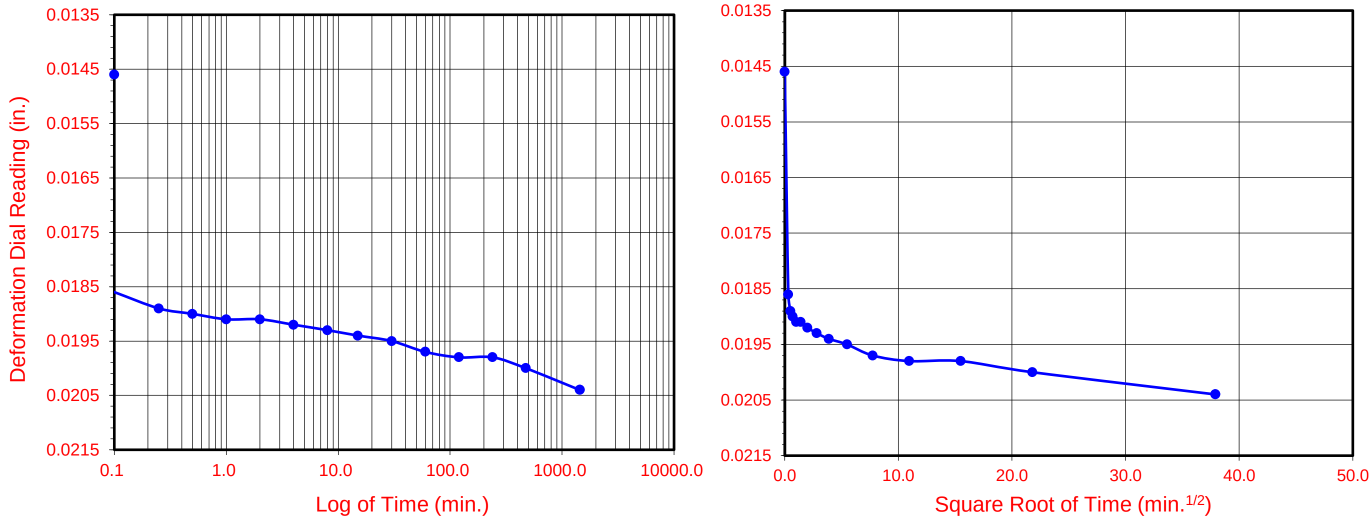


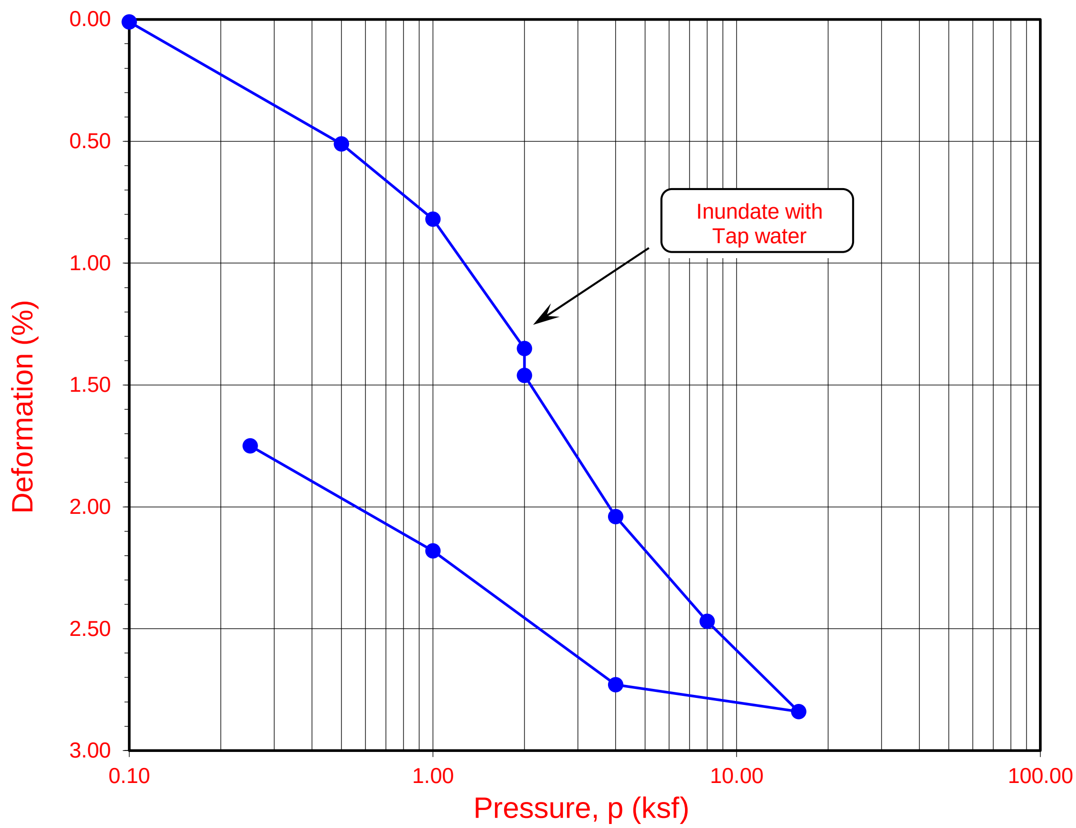
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.0001	0.9999	0.00	0.01	0.420	0.01
0.50	0.0051	0.9949	0.00	0.51	0.413	0.51
1.00	0.0082	0.9918	0.00	0.82	0.409	0.82
2.00	0.0135	0.9865	0.00	1.35	0.401	1.35
2.00	0.0146	0.9854	0.00	1.46	0.399	1.46
4.00	0.0204	0.9796	0.00	2.04	0.391	2.04
8.00	0.0247	0.9753	0.00	2.47	0.385	2.47
16.00	0.0284	0.9716	0.00	2.84	0.380	2.84
4.00	0.0273	0.9727	0.00	2.73	0.381	2.73
1.00	0.0218	0.9782	0.00	2.18	0.389	2.18
0.25	0.0175	0.9825	0.00	1.75	0.395	1.75

Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/26/20	7:05:00	0.0	0.0	0.0146
10/26/20	7:05:06	0.1	0.3	0.0186
10/26/20	7:05:15	0.2	0.5	0.0189
10/26/20	7:05:30	0.5	0.7	0.0190
10/26/20	7:06:00	1.0	1.0	0.0191
10/26/20	7:07:00	2.0	1.4	0.0191
10/26/20	7:09:00	4.0	2.0	0.0192
10/26/20	7:13:00	8.0	2.8	0.0193
10/26/20	7:20:00	15.0	3.9	0.0194
10/26/20	7:35:00	30.0	5.5	0.0195
10/26/20	8:05:00	60.0	7.7	0.0197
10/26/20	9:05:00	120.0	11.0	0.0198
10/26/20	11:05:00	240.0	15.5	0.0198
10/26/20	15:00:00	475.0	21.8	0.0200
10/27/20	7:03:00	1438.0	37.9	0.0204
10/27/20	7:03:00	1438.0	37.9	0.0204

Time Readings @ 4.0 ksf





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-4	**B-1**	**0 - 5.0**	**7.3**	**12.3**	**118.7**	**120.8**	**0.420**	**0.395**	**47**	**84**

Soil Identification: Silty Sand (SM), Olive Brown.

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

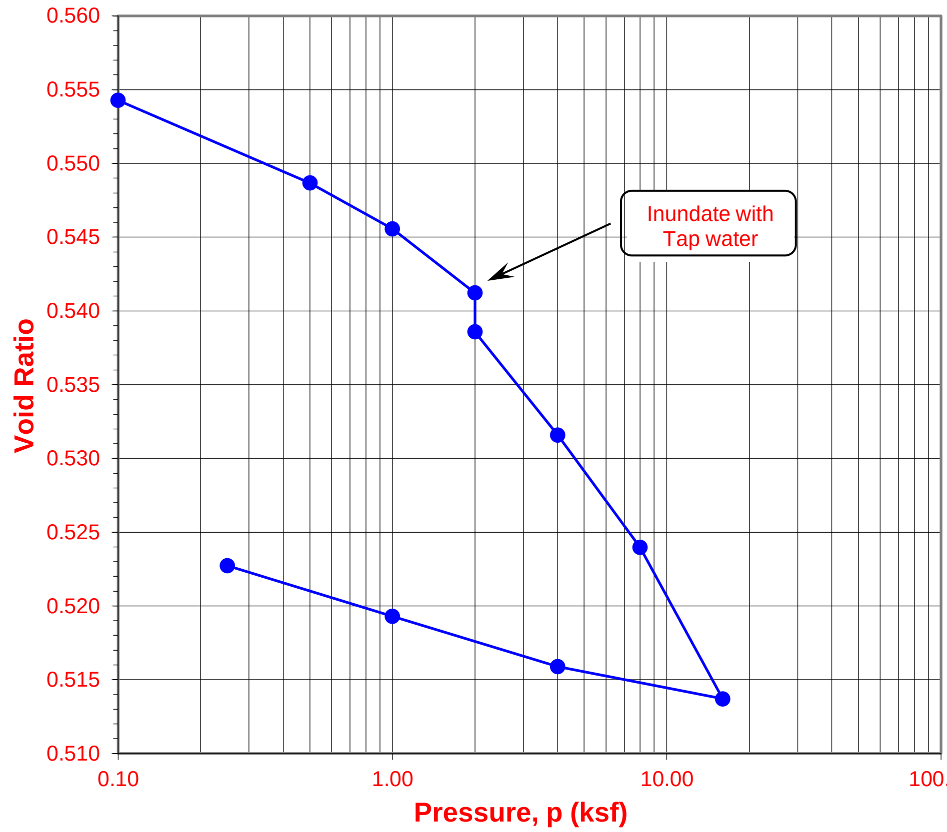
10-20

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By: M. Vinet	Date: 10/21/20
Project No.:	12915.001	Checked By: M. Vinet	Date: 10/29/20
Boring No.:	P-1	Depth (ft.): 0 - 5.0	
Sample No.:	B-1	Sample Type:	90% Remold
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Olive Brown.		

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	185.10
Weight of Ring (g):	44.70
Height after consol. (in.):	0.9797
Before Test	
Wt. of Wet Sample+Cont. (g):	140.40
Wt. of Dry Sample+Cont. (g):	130.51
Weight of Container (g):	0.00
Initial Moisture Content (%)	7.6
Initial Dry Density (pcf)	108.5
Initial Saturation (%):	37
Initial Vertical Reading (in.)	0.0000
After Test	
Wt. of Wet Sample+Cont. (g):	247.65
Wt. of Dry Sample+Cont. (g):	225.88
Weight of Container (g):	50.67
Final Moisture Content (%)	16.68
Final Dry Density (pcf):	110.7
Final Saturation (%):	86
Final Vertical Reading (in.)	0.0203
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

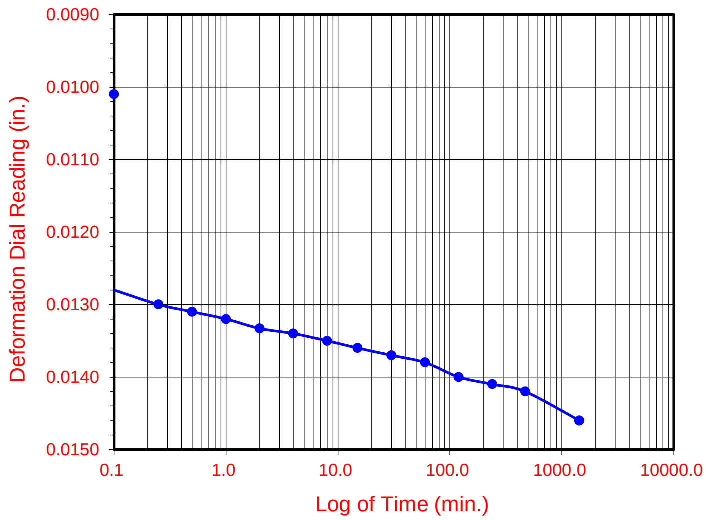


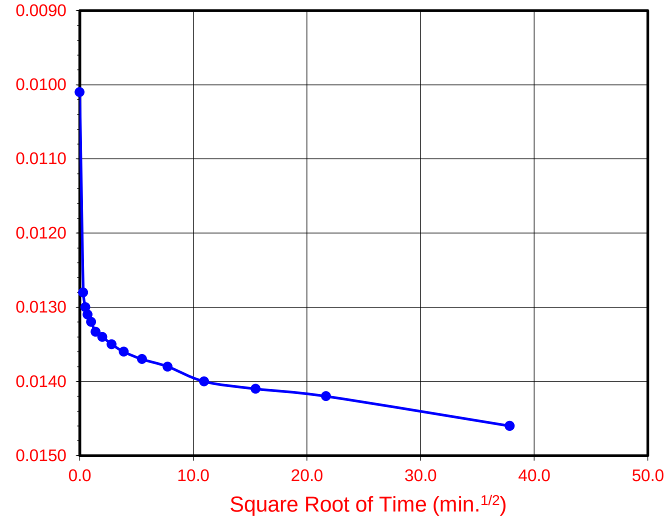
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.0000	1.0000	0.00	0.00	0.554	0.00
0.50	0.0036	0.9964	0.00	0.36	0.549	0.36
1.00	0.0056	0.9944	0.00	0.56	0.546	0.56
2.00	0.0084	0.9916	0.00	0.84	0.541	0.84
2.00	0.0101	0.9899	0.00	1.01	0.539	1.01
4.00	0.0146	0.9854	0.00	1.46	0.532	1.46
8.00	0.0195	0.9805	0.00	1.95	0.524	1.95
16.00	0.0261	0.9739	0.00	2.61	0.514	2.61
4.00	0.0247	0.9753	0.00	2.47	0.516	2.47
1.00	0.0225	0.9775	0.00	2.25	0.519	2.25
0.25	0.0203	0.9797	0.00	2.03	0.523	2.03

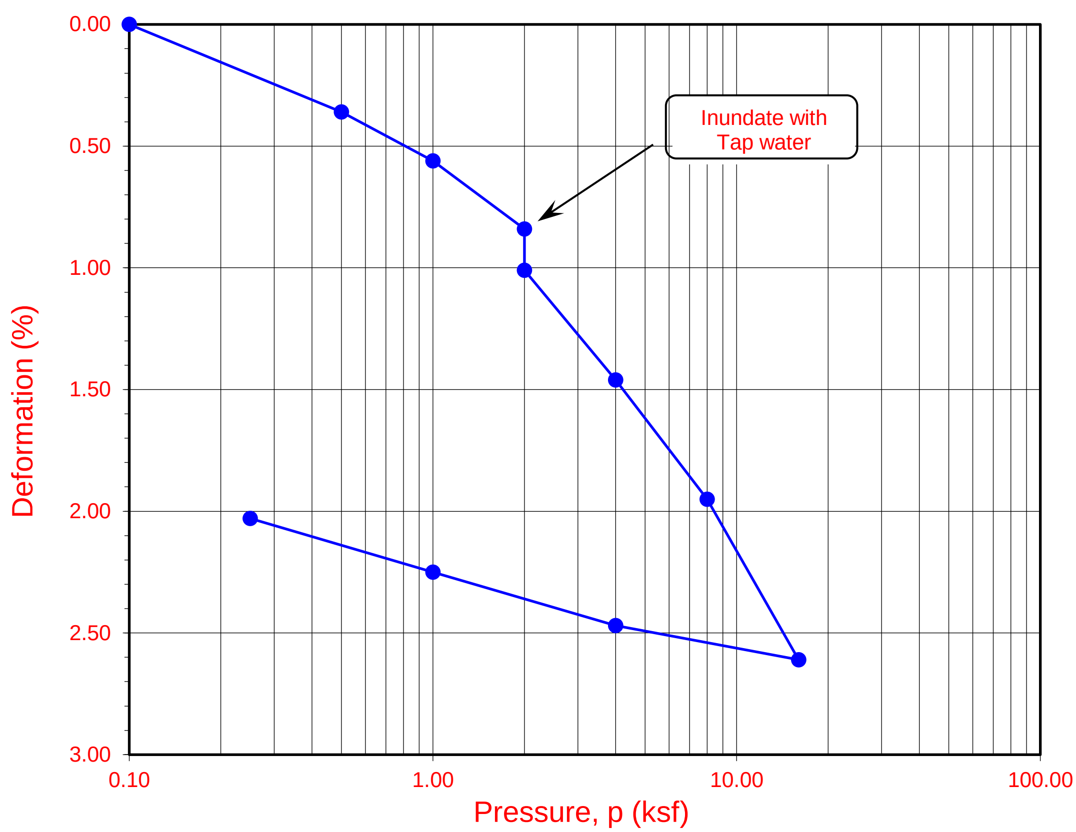
Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/26/20	7:10:00	0.0	0.0	0.0101
10/26/20	7:10:06	0.1	0.3	0.0128
10/26/20	7:10:15	0.2	0.5	0.0130
10/26/20	7:10:30	0.5	0.7	0.0131
10/26/20	7:11:00	1.0	1.0	0.0132
10/26/20	7:12:00	2.0	1.4	0.0133
10/26/20	7:14:00	4.0	2.0	0.0134
10/26/20	7:18:00	8.0	2.8	0.0135
10/26/20	7:25:00	15.0	3.9	0.0136
10/26/20	7:40:00	30.0	5.5	0.0137
10/26/20	8:10:00	60.0	7.7	0.0138
10/26/20	9:10:00	120.0	11.0	0.0140
10/26/20	11:10:00	240.0	15.5	0.0141
10/26/20	15:00:00	470.0	21.7	0.0142
10/27/20	7:03:00	1433.0	37.9	0.0146
10/27/20	7:03:00	1433.0	37.9	0.0146

Time Readings @ 4.0 ksf







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
P-1	**B-1**	**0 - 5.0**	**7.6**	**16.7**	**108.5**	**110.7**	**0.554**	**0.523**	**37**	**86**

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown.

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

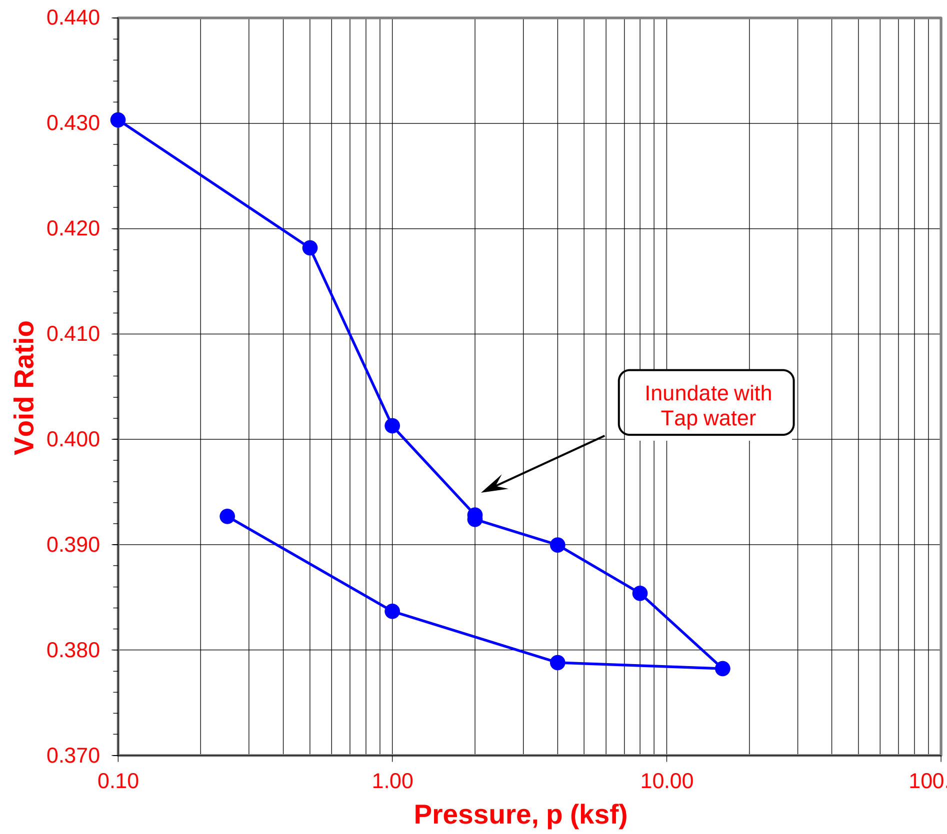
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By: M. Vinet	Date: 10/21/20
Project No.:	12915.001	Checked By: M. Vinet	Date: 10/29/20
Boring No.:	P-6	Depth (ft.): 0 - 5.0	
Sample No.:	B-1	Sample Type: 90% Remold	
Soil Identification:	Silty Sand (SM), Olive Brown.		

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	199.30
Weight of Ring (g):	45.70
Height after consol. (in.):	0.9732
Before Test	
Wt. of Wet Sample+Cont. (g):	154.10
Wt. of Dry Sample+Cont. (g):	142.21
Weight of Container (g):	0.00
Initial Moisture Content (%)	8.4
Initial Dry Density (pcf)	117.8
Initial Saturation (%):	52
Initial Vertical Reading (in.)	0.0000
After Test	
Wt. of Wet Sample+Cont. (g):	255.93
Wt. of Dry Sample+Cont. (g):	237.90
Weight of Container (g):	49.99
Final Moisture Content (%)	12.68
Final Dry Density (pcf):	121.4
Final Saturation (%):	88
Final Vertical Reading (in.)	0.0203
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

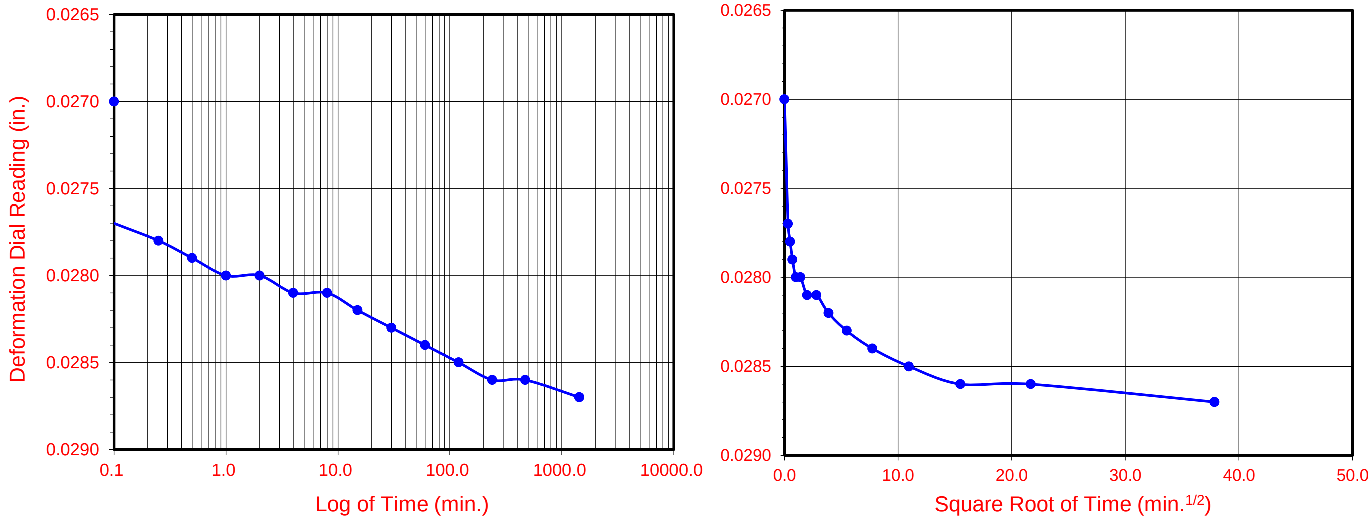


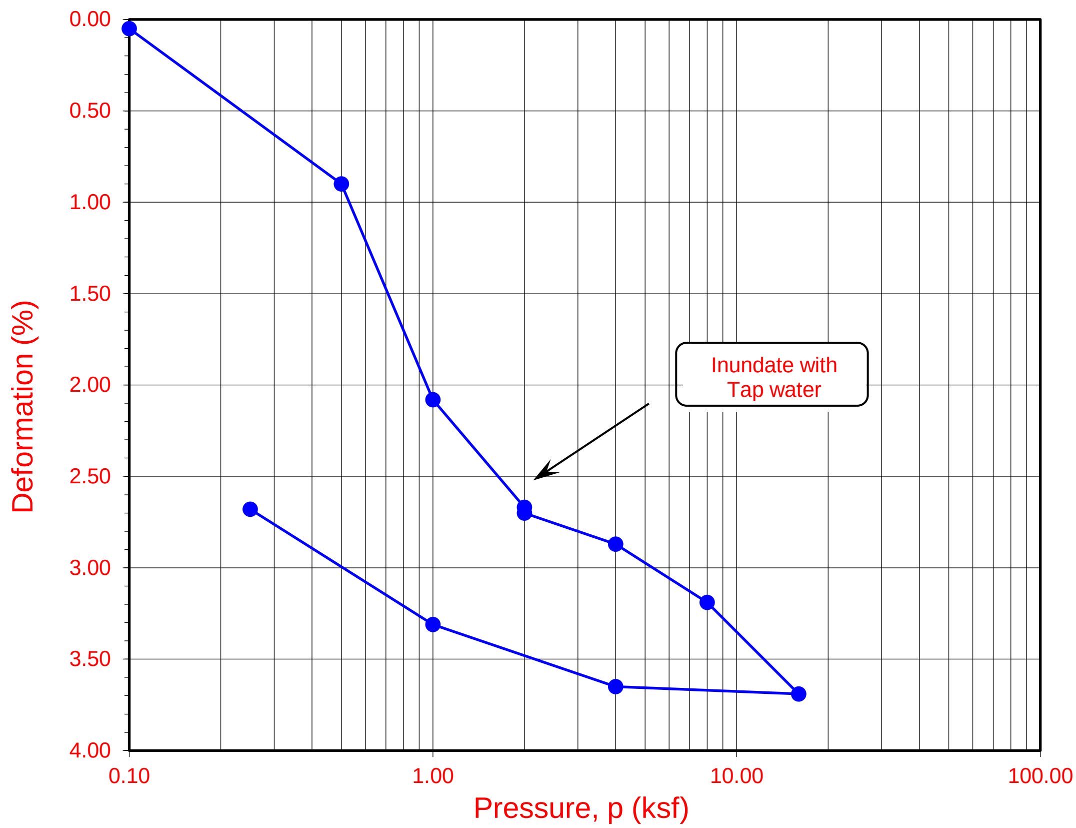
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.0005	0.9995	0.00	0.05	0.430	0.05
0.50	0.0090	0.9910	0.00	0.90	0.418	0.90
1.00	0.0208	0.9792	0.00	2.08	0.401	2.08
2.00	0.0267	0.9733	0.00	2.67	0.393	2.67
2.00	0.0270	0.9730	0.00	2.70	0.392	2.70
4.00	0.0287	0.9713	0.00	2.87	0.390	2.87
8.00	0.0319	0.9681	0.00	3.19	0.385	3.19
16.00	0.0369	0.9631	0.00	3.69	0.378	3.69
4.00	0.0365	0.9635	0.00	3.65	0.379	3.65
1.00	0.0331	0.9669	0.00	3.31	0.384	3.31
0.25	0.0268	0.9732	0.00	2.68	0.393	2.68

Time Readings @ 4.0 ksf

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)
10/26/20	7:10:00	0.0	0.0	0.0270
10/26/20	7:10:06	0.1	0.3	0.0277
10/26/20	7:10:15	0.2	0.5	0.0278
10/26/20	7:10:30	0.5	0.7	0.0279
10/26/20	7:11:00	1.0	1.0	0.0280
10/26/20	7:12:00	2.0	1.4	0.0280
10/26/20	7:14:00	4.0	2.0	0.0281
10/26/20	7:18:00	8.0	2.8	0.0281
10/26/20	7:25:00	15.0	3.9	0.0282
10/26/20	7:40:00	30.0	5.5	0.0283
10/26/20	8:10:00	60.0	7.7	0.0284
10/26/20	9:10:00	120.0	11.0	0.0285
10/26/20	11:10:00	240.0	15.5	0.0286
10/26/20	15:00:00	470.0	21.7	0.0286
10/27/20	7:03:00	1433.0	37.9	0.0287
10/27/20	7:03:00	1433.0	37.9	0.0287

Time Readings @ 4.0 ksf





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
P-6	**B-1**	**0 - 5.0**	**8.4**	**12.7**	**117.8**	**121.4**	**0.431**	**0.393**	**52**	**88**

Soil Identification: Silty Sand (SM), Olive Brown.

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Leighton

Project Name: SoCal Arena/Riverside City Arena/Geo | Tested By : M. Vinet | Date: 10/28/20

Project No. : 12915.001 | Data Input By: M. Vinet | Date: 10/28/20

Boring No.	LB-1	LB-1	LB-4	
Sample No.	B-1	B-2	B-1	
Sample Depth (ft)	0 - 5	14.0	0 - 5	
Soil Identification:	Silty Sand (SM)	Poorly Graded Sand (SP)	Silty Sand (SM)	
Wet Weight of Soil + Container (g)	100.00	100.00	100.00	
Dry Weight of Soil + Container (g)	100.00	100.00	100.00	
Weight of Container (g)	0.00	0.00	0.00	
Moisture Content (%)	0.00	0.00	0.00	
Weight of Soaked Soil (g)	100.00	100.00	100.00	

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	1	2	3	
Crucible No.	1	2	3	
Furnace Temperature (°C)	850	850	850	
Time In / Time Out	Timer	Timer	Timer	
Duration of Combustion (min)	45	45	45	
Wt. of Crucible + Residue (g)	25.1122	24.8962	24.5563	
Wt. of Crucible (g)	25.1065	24.8922	24.5519	
Wt. of Residue (g) (A)	0.0057	0.0040	0.0044	
PPM of Sulfate (A) x 41150	234.56	165.42	181.06	
PPM of Sulfate, Dry Weight Basis	**235**	**165**	**181**	

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30	30	30	
ml of AgNO3 Soln. Used in Titration (C)	0.6	0.4	0.4	
PPM of Chloride (C -0.2) * 100 * 30 / B	40	20	20	
PPM of Chloride, Dry Wt. Basis	**40**	**20**	**20**	

pH TEST, DOT California Test 643

pH Value	**7.50**	**8.10**	**8.10**	
Temperature °C	21.0	21.0	21.0	

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By :	M. Vinet	Date:	10/28/20
Project No. :	12915.001	Data Input By:	M. Vinet	Date:	10/28/20
Boring No.:	LB-1	Depth (ft.) :	0 - 5		
Sample No. :	B-1				
Soil Identification:*	Silty Sand (SM)				

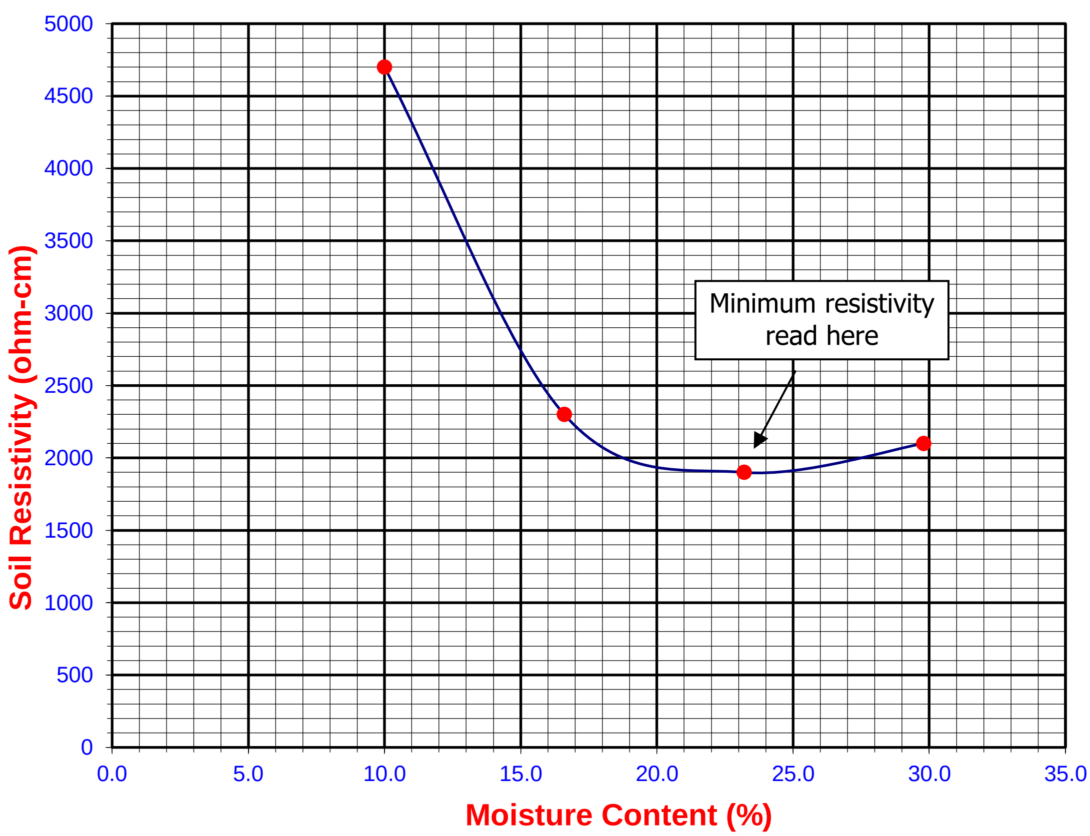
*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	4700	4700
2	83	16.60	2300	2300
3	116	23.20	1900	1900
4	149	29.80	2100	2100
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000

MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1900	**23.2**	**235**	**40**	**7.50**	**21.0**



SOIL RESISTIVITY TEST
DOT CA TEST 643

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By :	M. Vinet	Date:	10/28/20
Project No. :	12915.001	Data Input By:	M. Vinet	Date:	10/28/20
Boring No.:	LB-1	Depth (ft.) :	14.0		
Sample No. :	B-2				

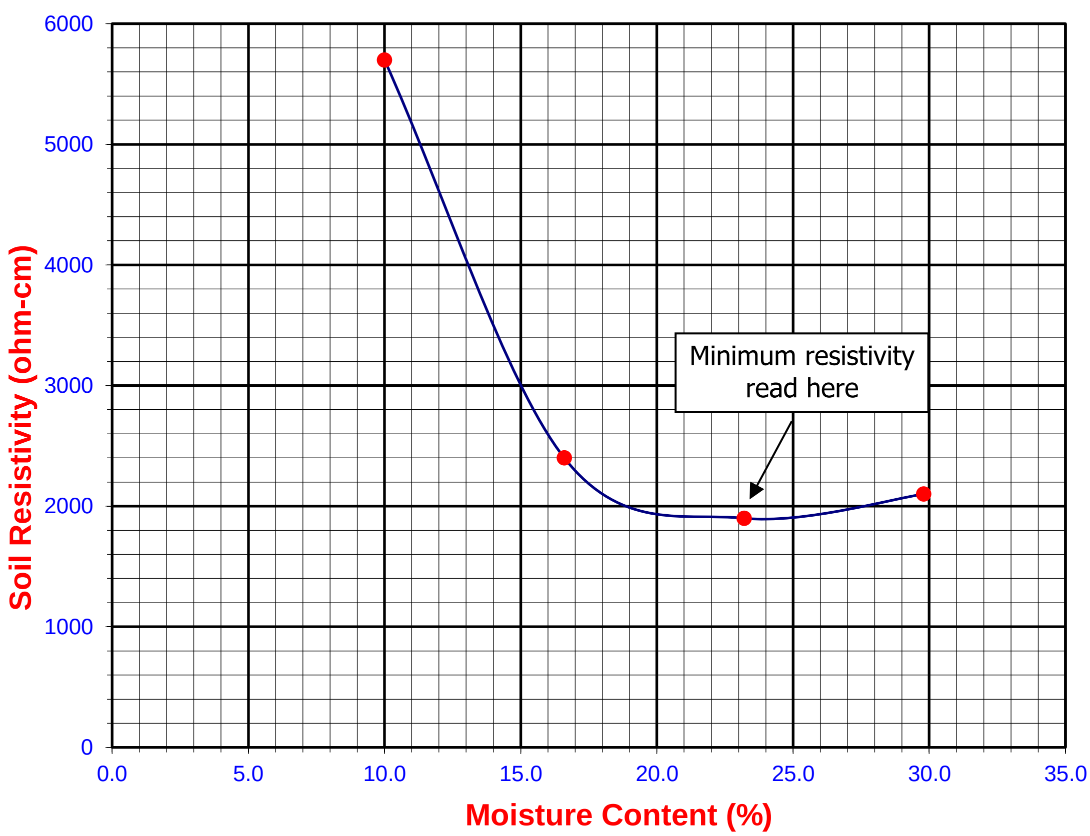
Soil Identification:* Poorly Graded Sand (SP)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5700	5700
2	83	16.60	2400	2400
3	116	23.20	1900	1900
4	149	29.80	2100	2100
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1900	**23.2**	**165**	**20**	**8.10**	**21.0**



SOIL RESISTIVITY TEST

DOT CA TEST 643

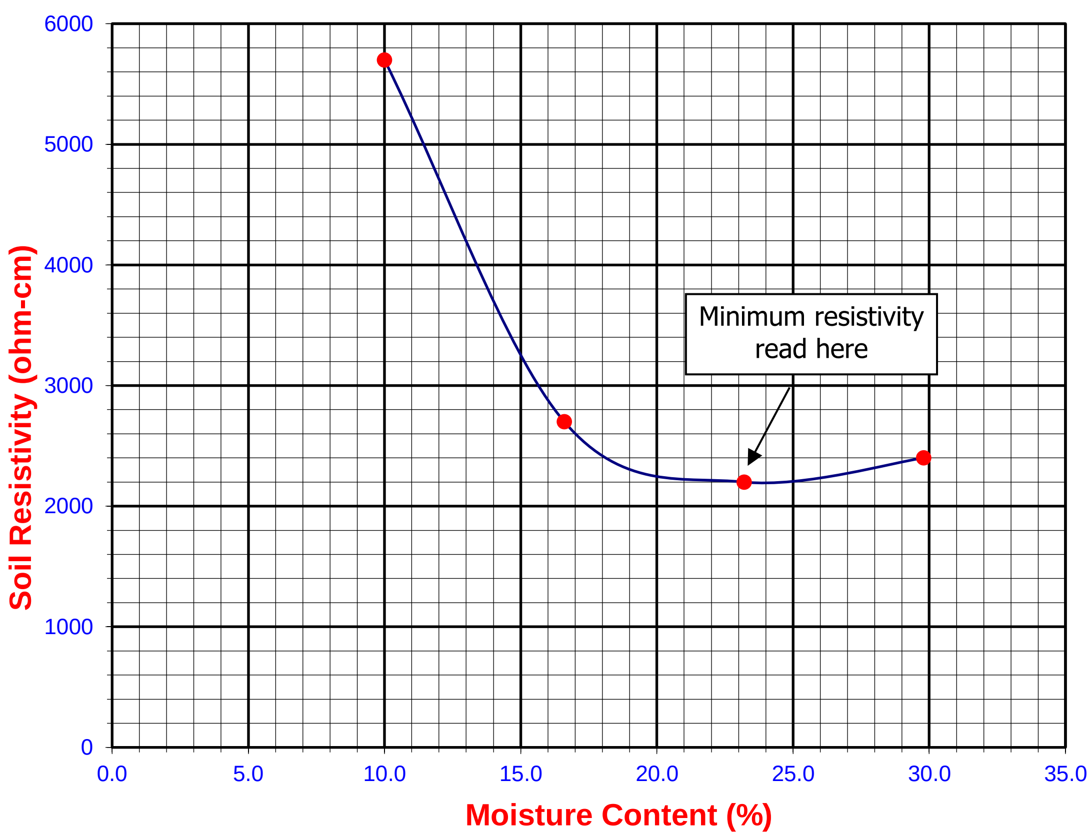
Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By :	M. Vinet	Date:	10/28/20
Project No. :	12915.001	Data Input By:	M. Vinet	Date:	10/28/20
Boring No.:	LB-4	Depth (ft.) :	0 - 5		
Sample No. :	B-1				
Soil Identification:*	Silty Sand (SM)				

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5700	5700
2	83	16.60	2700	2700
3	116	23.20	2200	2200
4	149	29.80	2400	2400
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2200	**23.2**	**181**	**20**	**8.10**	**21.0**



TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: SoCal Arena/Riverside City Arena/Geo | Tested By : M. Vinet | Date: 10/28/20

Project No. : 12915.001 | Data Input By: M. Vinet | Date: 10/28/20

Boring No.	P-1	P-6		
Sample No.	B-1	B-1		
Sample Depth (ft)	0 - 5	0 - 5		
Soil Identification:	Poorly Graded Sand with Silt (SP-SM)	Silty Sand (SM)		
Wet Weight of Soil + Container (g)	100.00	100.00		
Dry Weight of Soil + Container (g)	100.00	100.00		
Weight of Container (g)	0.00	0.00		
Moisture Content (%)	0.00	0.00		
Weight of Soaked Soil (g)	100.00	100.00		

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	4	5		
Crucible No.	4	5		
Furnace Temperature (°C)	850	850		
Time In / Time Out	Timer	Timer		
Duration of Combustion (min)	45	45		
Wt. of Crucible + Residue (g)	23.9962	25.0232		
Wt. of Crucible (g)	23.9925	25.0200		
Wt. of Residue (g) (A)	0.0037	0.0032		
PPM of Sulfate (A) x 41150	152.26	131.68		
PPM of Sulfate, Dry Weight Basis	**152**	**132**		

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30	30		
ml of AgNO3 Soln. Used in Titration (C)	0.4	0.4		
PPM of Chloride (C -0.2) * 100 * 30 / B	20	20		
PPM of Chloride, Dry Wt. Basis	**20**	**20**		

pH TEST, DOT California Test 643

pH Value	**8.40**	**8.30**		
Temperature °C	21.0	21.0		

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By :	M. Vinet Date: 10/28/20
Project No. :	12915.001	Data Input By:	M. Vinet Date: 10/28/20
Boring No.:	P-1	Depth (ft.) :	0 - 5
Sample No. :	B-1		

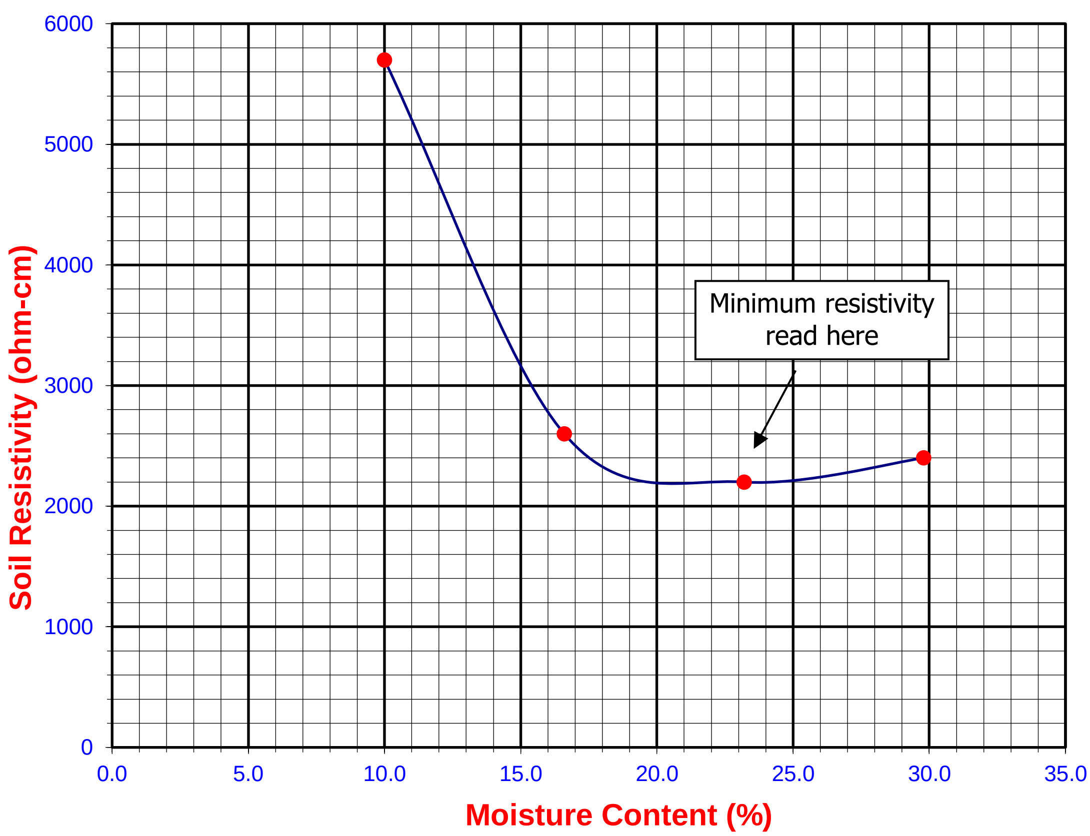
Soil Identification:* Poorly Graded Sand with Silt (SP-SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	5700	5700
2	83	16.60	2600	2600
3	116	23.20	2200	2200
4	149	29.80	2400	2400
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH: pH	Soil pH: Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2200	**23.2**	**152**	**20**	**8.40**	**21.0**



SOIL RESISTIVITY TEST
DOT CA TEST 643

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By :	M. Vinet Date: 10/28/20
Project No. :	12915.001	Data Input By:	M. Vinet Date: 10/28/20
Boring No.:	P-6	Depth (ft.) :	0 - 5
Sample No. :	B-1		

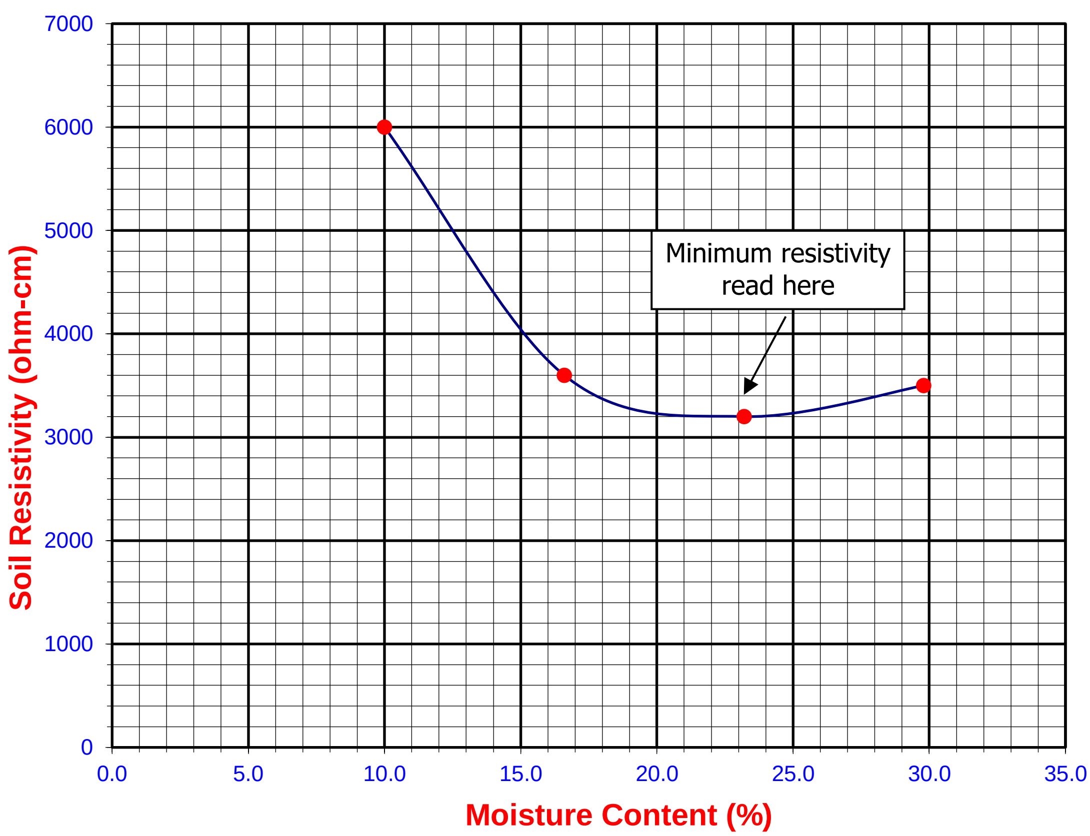
Soil Identification:* Silty Sand (SM)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	50	10.00	6000	6000
2	83	16.60	3600	3600
3	116	23.20	3200	3200
4	149	29.80	3500	3500
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	100.00
Dry Wt. of Soil + Cont. (g)	100.00
Wt. of Container (g)	0.00
Container No.	A
Initial Soil Wt. (g) (Wt)	500.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
3200	**23.2**	**132**	**20**	**8.30**	**21.0**



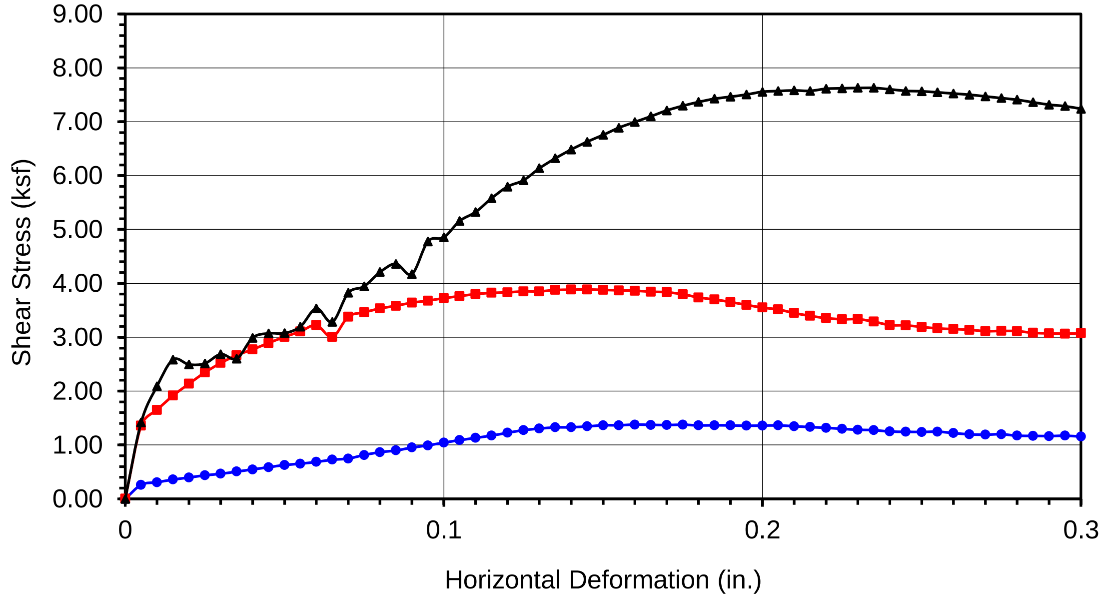
Leighton

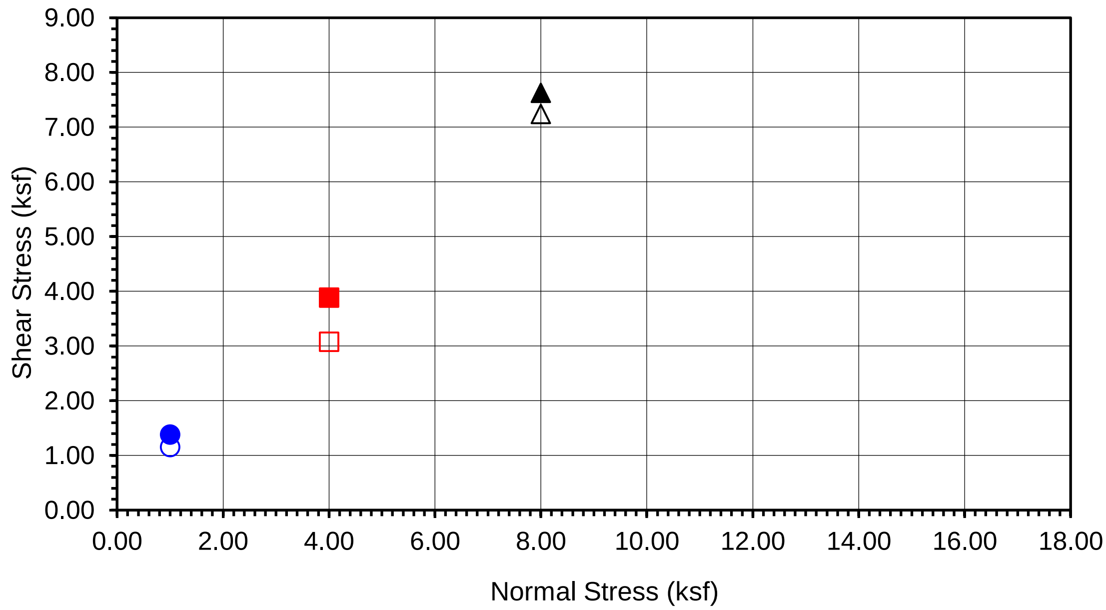
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name: SoCal Arena/Riverside City Arena/Geo Tested By: M. Vinet Date: 10/21/20
Project No.: 12915.001 Checked By: M. Vinet Date: 10/27/20
Boring No.: LB-1 Sample Type: Drive
Sample No.: R-1 Depth (ft.): 5.0
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	179.27	187.24	188.07
Weight of Ring(gm):	45.13	45.07	42.23
Before Shearing			
Weight of Wet Sample+Cont.(gm):	326.17	326.17	326.17
Weight of Dry Sample+Cont.(gm):	312.17	312.17	312.17
Weight of Container(gm):	50.18	50.18	50.18
Vertical Rdg.(in): Initial	0.0000	0.2526	0.2535
Vertical Rdg.(in): Final	-0.0291	0.3003	0.3050
After Shearing			
Weight of Wet Sample+Cont.(gm):	195.42	205.61	206.52
Weight of Dry Sample+Cont.(gm):	175.68	186.07	187.10
Weight of Container(gm):	49.60	50.91	50.23
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type: Drive	
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 1.379	■ 3.886	▲ 7.627
Shear Stress @ End of Test (ksf)	○ 1.156	□ 3.075	△ 7.240
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	5.34	5.34	5.34
Dry Density (pcf)	105.9	112.2	115.1
Saturation (%)	24.4	28.8	31.1
Soil Height Before Shearing (in.)	0.9709	0.9523	0.9485
Final Moisture Content (%)	15.7	14.5	14.2

Leighton

DIRECT SHEAR TEST RESULTS

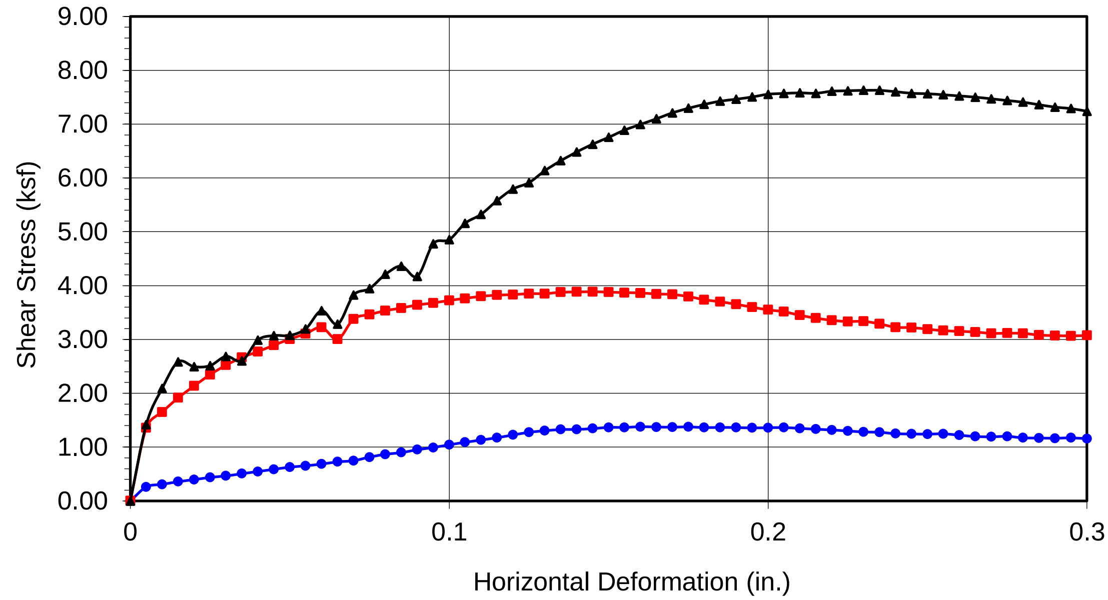
Consolidated Drained - ASTM D 3080

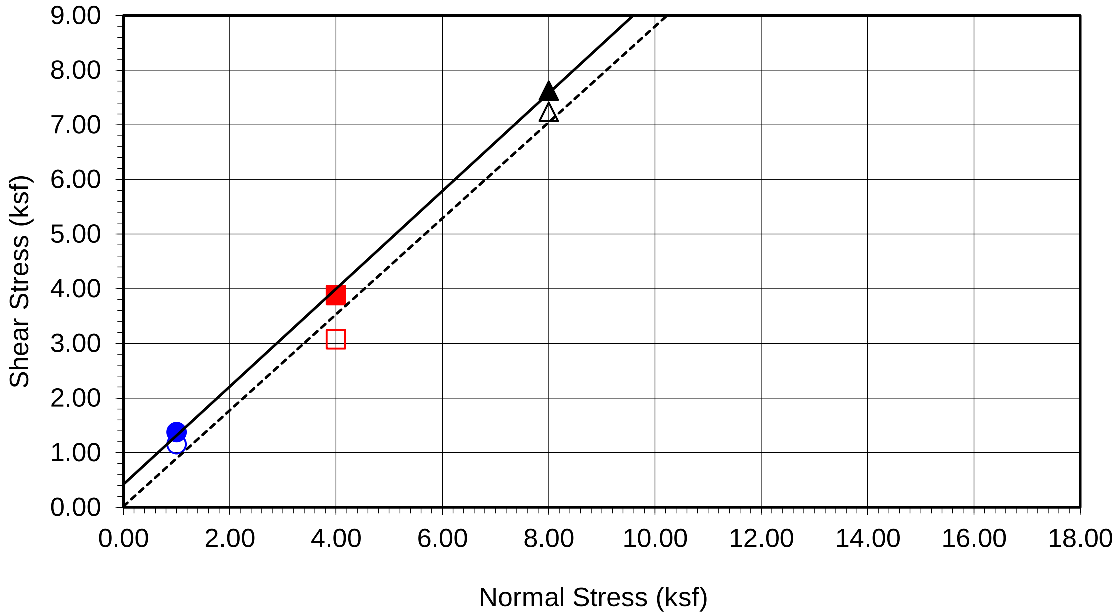
Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Direct Shear; LB-1, R-1 (10-09-20)





Boring No.	**LB-1**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type:	Drive
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown	

Strength Parameters

	C (psf)	ϕ (°)
Peak	420	42
Ultimate	17	41

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 1.379	■ 3.886	▲ 7.627
Shear Stress @ End of Test (ksf)	○ 1.156	□ 3.075	△ 7.240
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	5.34	5.34	5.34
Dry Density (pcf)	105.9	112.2	115.1
Saturation (%)	24.4	28.8	31.1
Soil Height Before Shearing (in.)	0.9709	0.9523	0.9485
Final Moisture Content (%)	15.7	14.5	14.2

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Direct Shear; LB-1, R-1 (10-09-20)

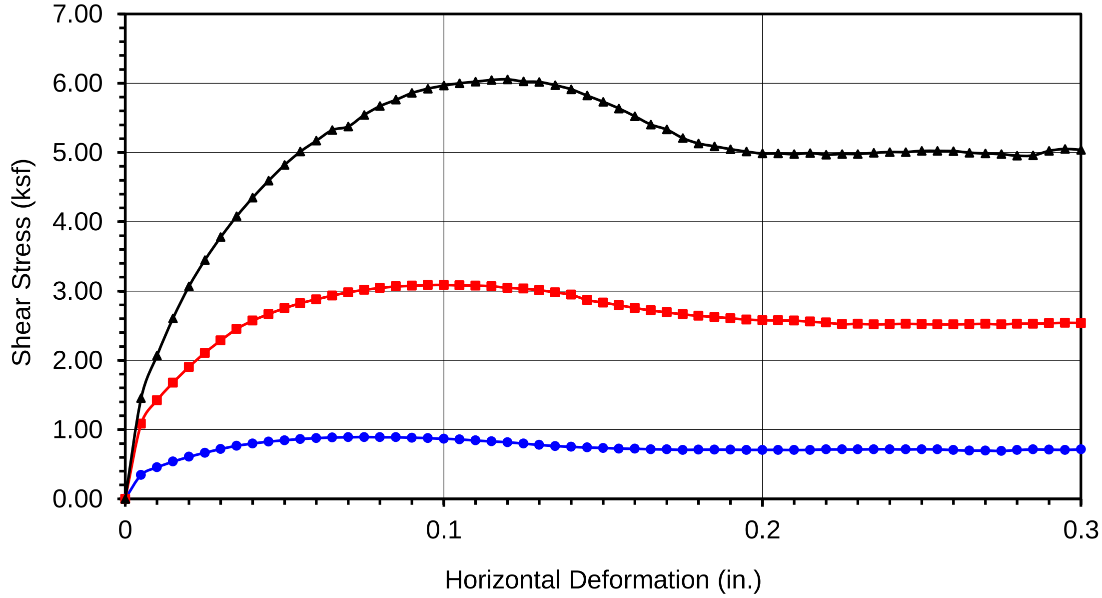
DIRECT SHEAR TEST

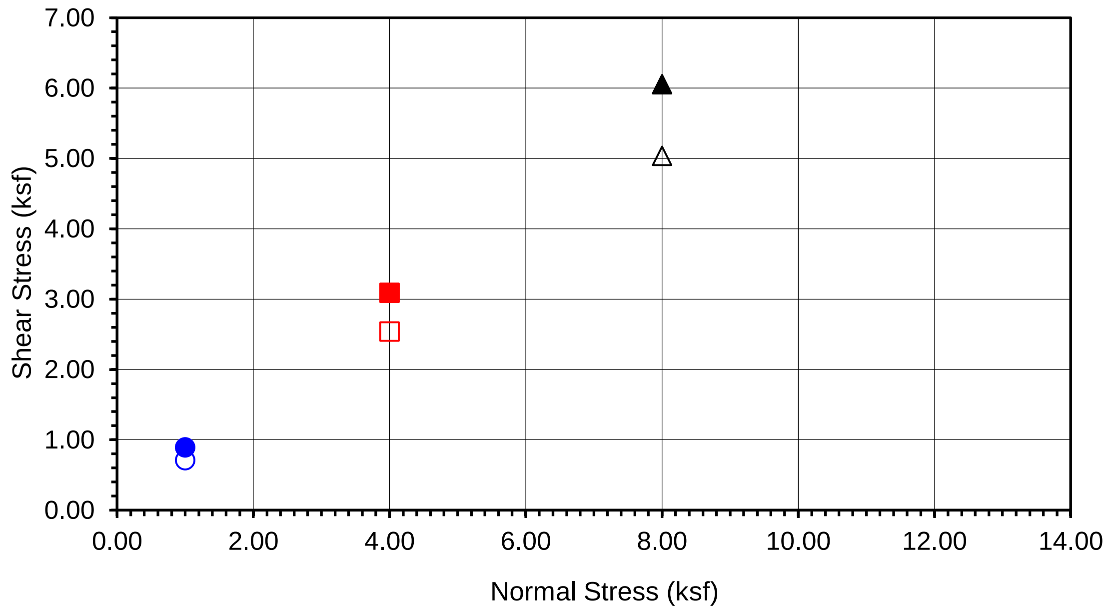
Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/21/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/27/20
Boring No.:	LB-1	Sample Type:	Drive		
Sample No.:	R-6	Depth (ft.):	20.0		

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	171.96	169.63	171.58
Weight of Ring(gm):	46.56	45.13	45.56
Before Shearing			
Weight of Wet Sample+Cont.(gm):	340.28	340.28	340.28
Weight of Dry Sample+Cont.(gm):	336.91	336.91	336.91
Weight of Container(gm):	50.44	50.44	50.44
Vertical Rdg.(in): Initial	0.0000	0.2515	0.2557
Vertical Rdg.(in): Final	-0.0110	0.2648	0.2832
After Shearing			
Weight of Wet Sample+Cont.(gm):	187.13	194.12	196.30
Weight of Dry Sample+Cont.(gm):	163.18	169.62	172.97
Weight of Container(gm):	49.64	49.77	50.06
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-6**
Depth (ft)	**20**
Sample Type: Drive	
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.892	■ 3.088	▲ 6.056
Shear Stress @ End of Test (ksf)	○ 0.713	□ 2.538	△ 5.038
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	1.18	1.18	1.18
Dry Density (pcf)	103.1	102.3	103.6
Saturation (%)	5.0	4.9	5.1
Soil Height Before Shearing (in.)	0.9890	0.9867	0.9725
Final Moisture Content (%)	21.1	20.4	19.0

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DIRECT SHEAR TEST RESULTS

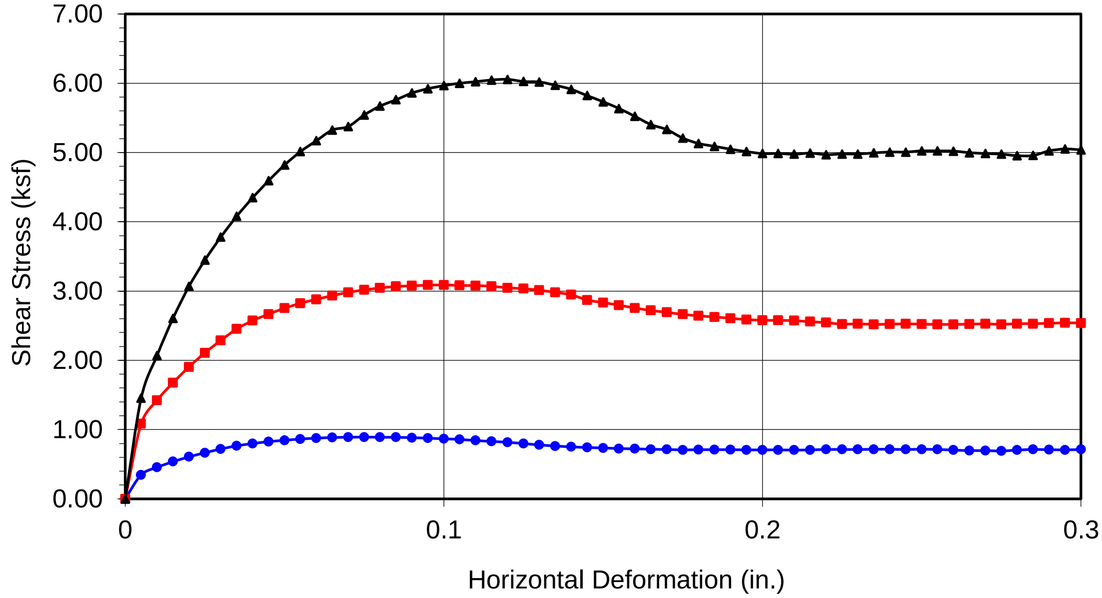
Consolidated Drained - ASTM D 3080

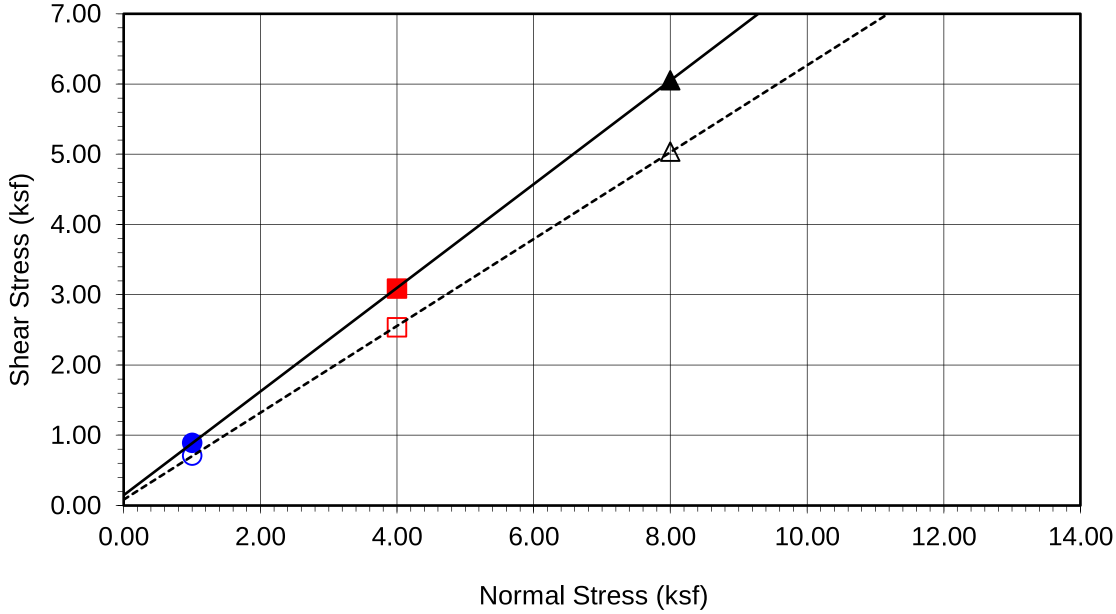
Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Direct Shear; LB-1, R-6 (10-09-20)





Boring No.	**LB-1**
Sample No.	**R-6**
Depth (ft)	**20**
Sample Type:	Drive

Soil Identification:
Poorly Graded Sand with Silt (SP-SM), Olive Brown

Strength Parameters

	C (psf)	ϕ (°)
Peak	148	36
Ultimate	84	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.892	■ 3.088	▲ 6.056
Shear Stress @ End of Test (ksf)	○ 0.713	□ 2.538	△ 5.038
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	1.18	1.18	1.18
Dry Density (pcf)	103.1	102.3	103.6
Saturation (%)	5.0	4.9	5.1
Soil Height Before Shearing (in.)	0.9890	0.9867	0.9725
Final Moisture Content (%)	21.1	20.4	19.0

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name: SoCal Arena/Riverside City Arena/Geo | Tested By: M. Vinet | Date: 10/22/20

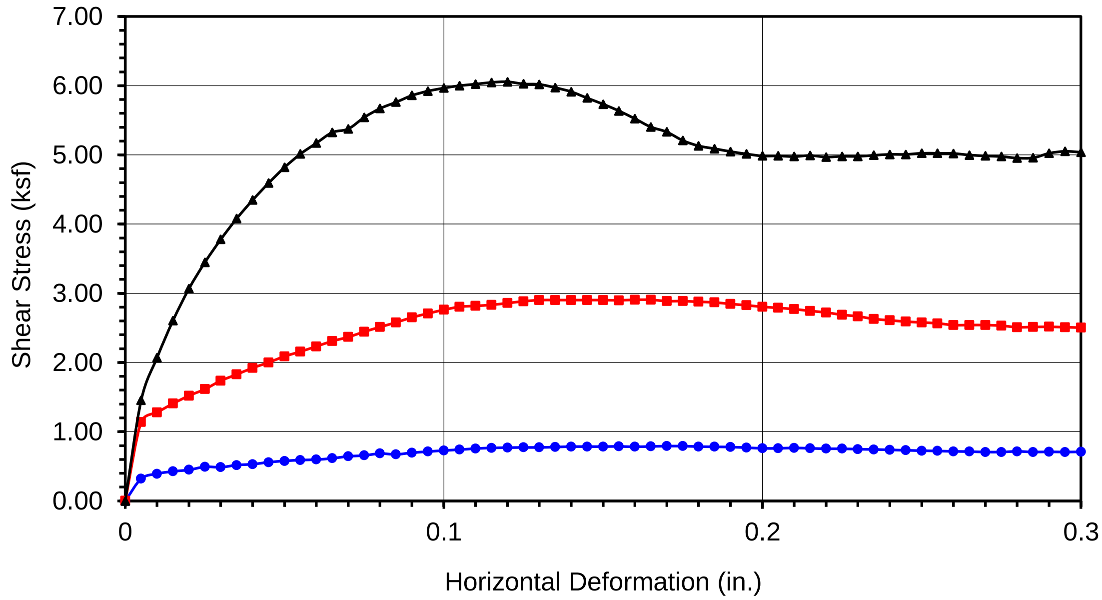
Project No.: 12915.001 | Checked By: M. Vinet | Date: 10/27/20

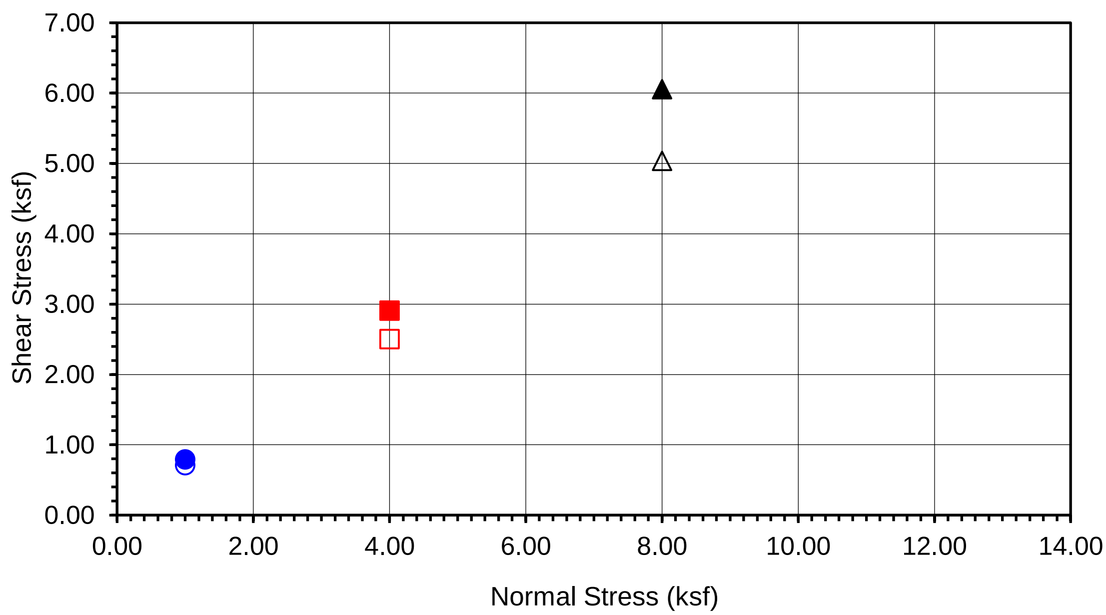
Boring No.: LB-1 | Sample Type: Drive

Sample No.: R-8 | Depth (ft.): 30.0

Soil Identification: Poorly Graded Sand (SP), Olive Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	146.26	160.00	163.49
Weight of Ring(gm):	46.11	43.27	43.01
Before Shearing			
Weight of Wet Sample+Cont.(gm):	100.15	100.15	100.15
Weight of Dry Sample+Cont.(gm):	91.65	91.65	91.65
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2435	0.2500
Vertical Rdg.(in): Final	-0.0122	0.2735	0.2912
After Shearing			
Weight of Wet Sample+Cont.(gm):	256.23	276.48	266.20
Weight of Dry Sample+Cont.(gm):	234.87	250.88	240.32
Weight of Container(gm):	158.16	159.23	150.20
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-8**
Depth (ft)	**30**

Sample Type:

Drive

Soil Identification:
Poorly Graded Sand (SP), Olive Brown.

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.792	■ 2.906	▲ 6.056
Shear Stress @ End of Test (ksf)	○ 0.710	□ 2.504	△ 5.038
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.27	9.27	9.27
Dry Density (pcf)	76.2	88.8	91.7
Saturation (%)	20.7	27.9	29.9
Soil Height Before Shearing (in.)	0.9878	0.9700	0.9588
Final Moisture Content (%)	27.8	27.9	28.7

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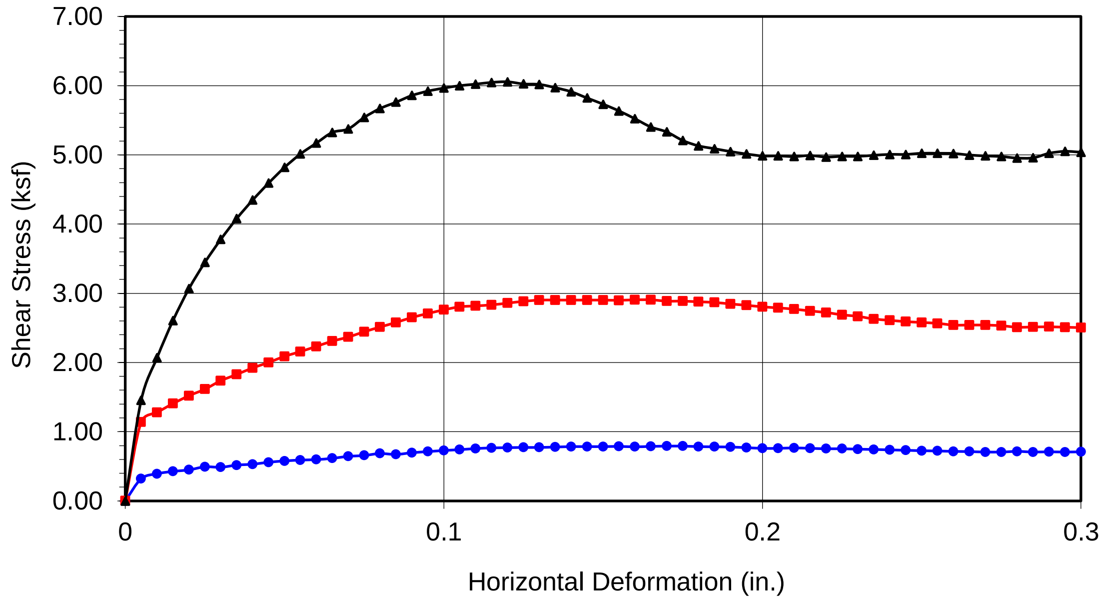
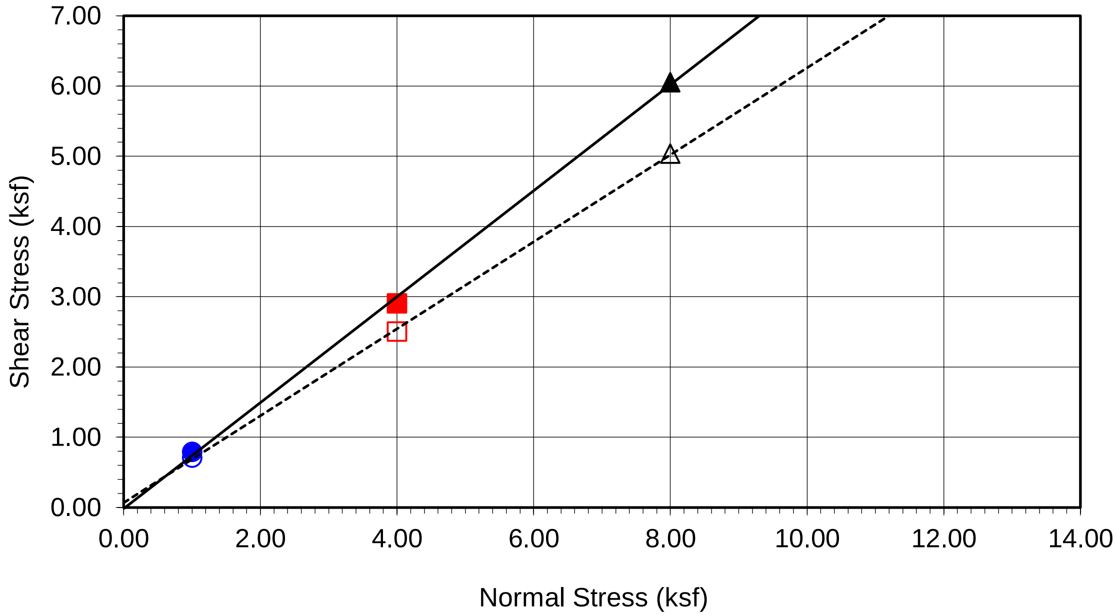
DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20





Boring No.	**LB-1**
Sample No.	**R-8**
Depth (ft)	**30**
Sample Type:	Drive

Soil Identification:
Poorly Graded Sand (SP), Olive Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	-16	37
Ultimate	68	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.792	■ 2.906	▲ 6.056
Shear Stress @ End of Test (ksf)	○ 0.710	□ 2.504	△ 5.038
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.27	9.27	9.27
Dry Density (pcf)	76.2	88.8	91.7
Saturation (%)	20.7	27.9	29.9
Soil Height Before Shearing (in.)	0.9878	0.9700	0.9588
Final Moisture Content (%)	27.8	27.9	28.7

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DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Leighton

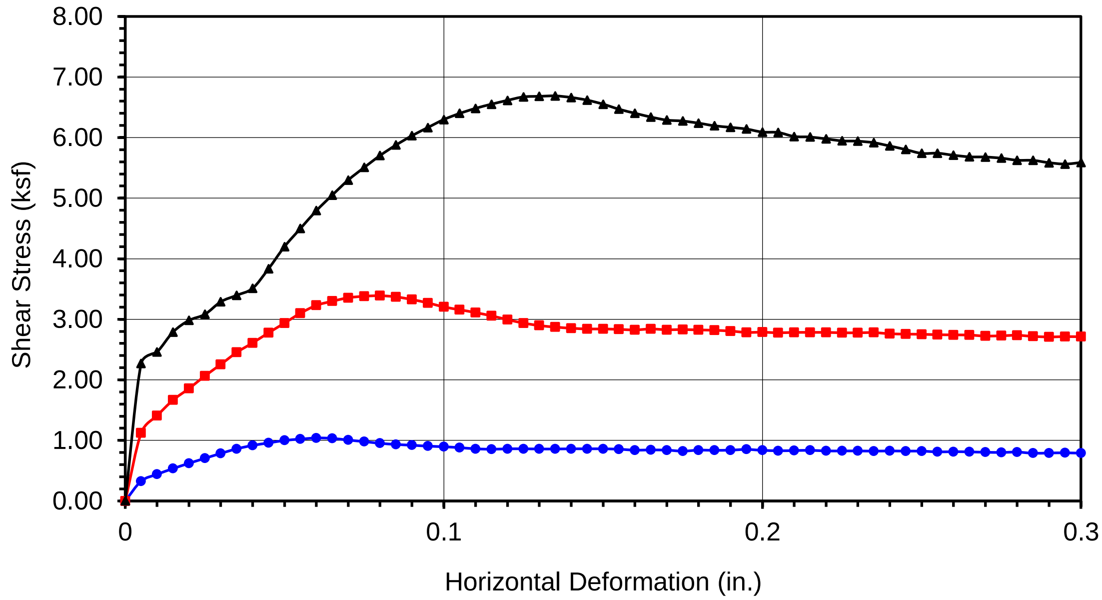
DIRECT SHEAR TEST

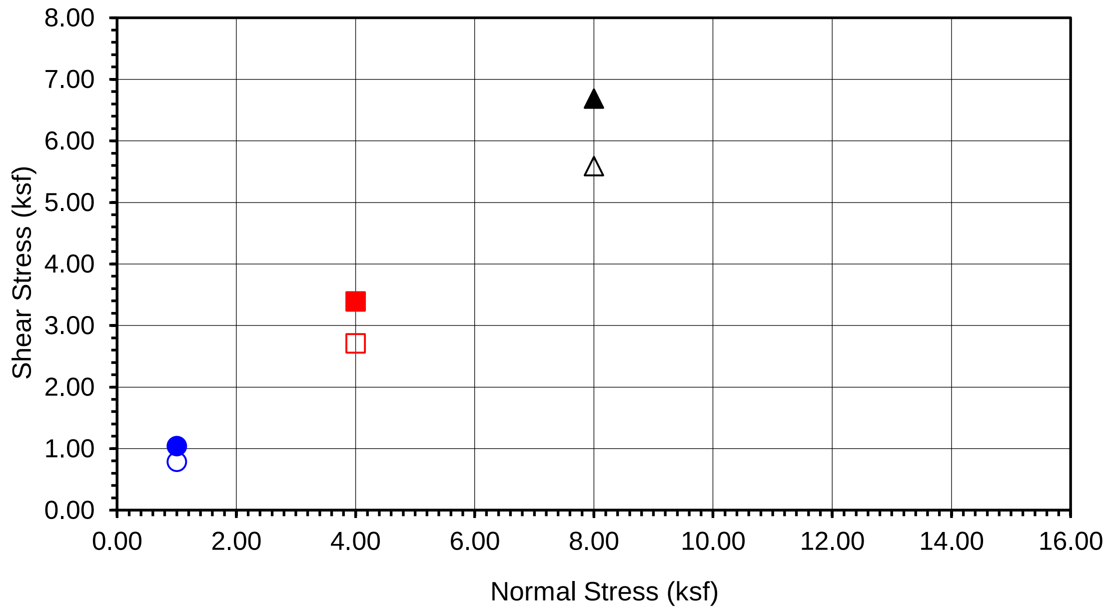
Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/22/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/27/20
Boring No.:	LB-4	Sample Type:	Drive		
Sample No.:	R-6	Depth (ft.):	20.0		

Soil Identification: Poorly Graded Sand (SP), Olive Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	177.38	170.01	170.67
Weight of Ring(gm):	43.74	42.35	41.63
Before Shearing			
Weight of Wet Sample+Cont.(gm):	133.64	133.64	133.64
Weight of Dry Sample+Cont.(gm):	127.92	127.92	127.92
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2572	0.2579
Vertical Rdg.(in): Final	-0.0096	0.2827	0.2865
After Shearing			
Weight of Wet Sample+Cont.(gm):	416.02	431.37	225.28
Weight of Dry Sample+Cont.(gm):	395.28	411.10	204.33
Weight of Container(gm):	267.36	290.08	81.60
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**R-6**
Depth (ft)	**20**

Sample Type:

Drive

Soil Identification:
Poorly Graded Sand (SP), Olive Brown.

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 1.040	■ 3.389	▲ 6.688
Shear Stress @ End of Test (ksf)	○ 0.788	□ 2.711	△ 5.588
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	4.47	4.47	4.47
Dry Density (pcf)	106.4	101.6	102.7
Saturation (%)	20.7	18.3	18.8
Soil Height Before Shearing (in.)	0.9904	0.9745	0.9714
Final Moisture Content (%)	16.2	16.7	17.1

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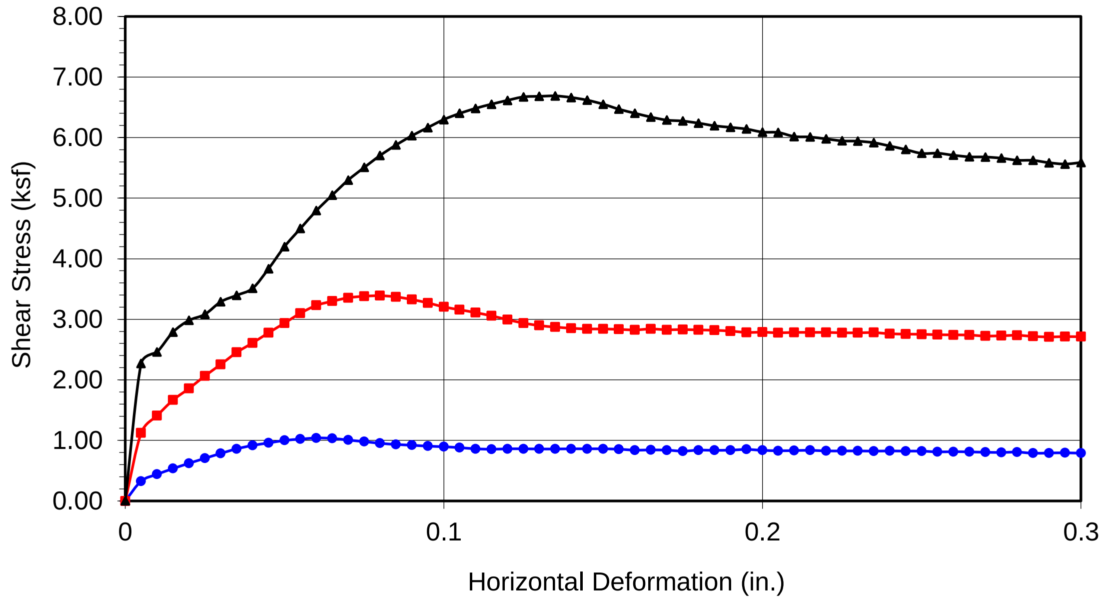
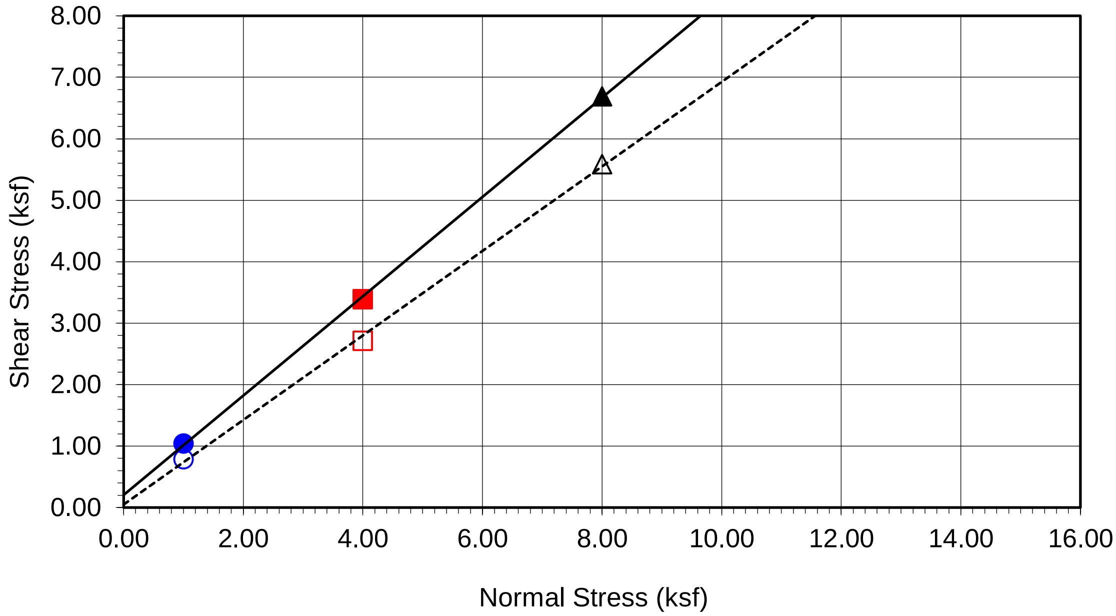
DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20





Boring No.	**LB-4**
Sample No.	**R-6**
Depth (ft)	**20**
Sample Type:	Drive
Soil Identification: Poorly Graded Sand (SP), Olive Brown.	

Strength Parameters

	C (psf)	ϕ (°)
Peak	205	39
Ultimate	50	35

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 1.040	■ 3.389	▲ 6.688
Shear Stress @ End of Test (ksf)	○ 0.788	□ 2.711	△ 5.588
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	4.47	4.47	4.47
Dry Density (pcf)	106.4	101.6	102.7
Saturation (%)	20.7	18.3	18.8
Soil Height Before Shearing (in.)	0.9904	0.9745	0.9714
Final Moisture Content (%)	16.2	16.7	17.1

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

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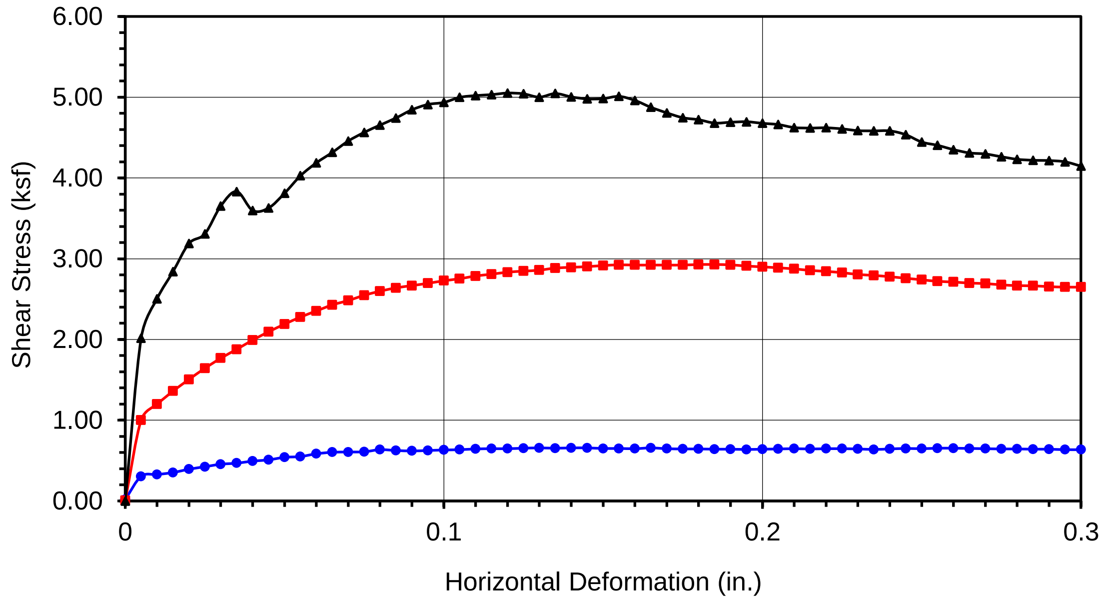
DIRECT SHEAR TEST

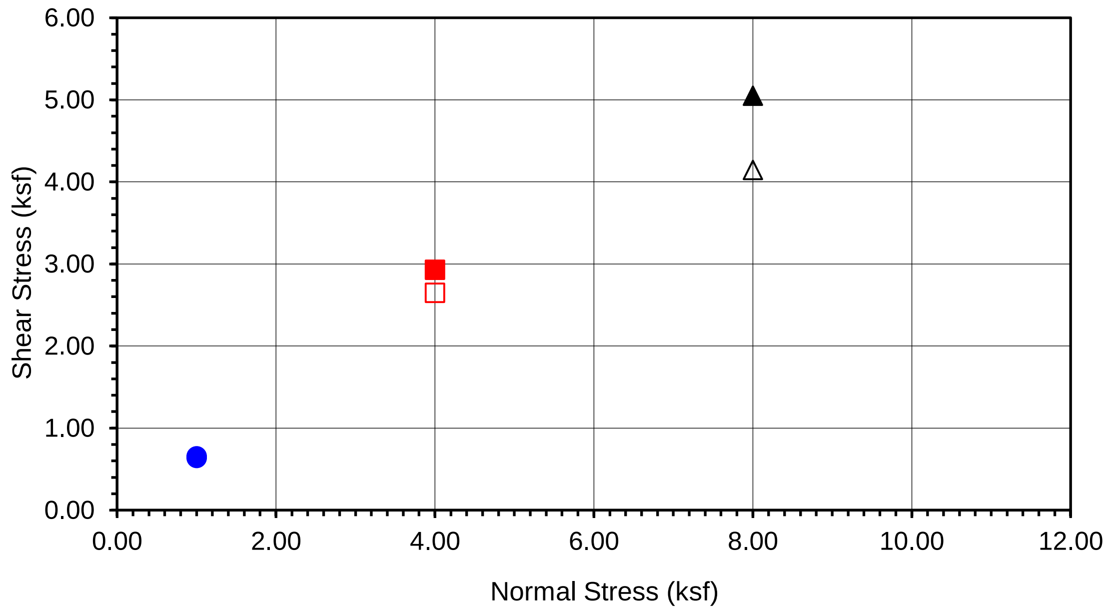
Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/23/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/27/20
Boring No.:	LB-4	Sample Type:	Drive		
Sample No.:	R-8	Depth (ft.):	30.0		

Soil Identification: Poorly Graded Sand (SP), Olive Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	150.93	157.14	170.48
Weight of Ring(gm):	43.90	45.78	45.80
Before Shearing			
Weight of Wet Sample+Cont.(gm):	107.03	107.03	107.03
Weight of Dry Sample+Cont.(gm):	98.71	98.71	98.71
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2488	0.2546
Vertical Rdg.(in): Final	-0.0293	0.3056	0.3325
After Shearing			
Weight of Wet Sample+Cont.(gm):	176.10	181.26	187.56
Weight of Dry Sample+Cont.(gm):	149.27	154.95	161.66
Weight of Container(gm):	50.56	50.59	51.02
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**R-8**
Depth (ft)	**30**
Sample Type: Drive	
Soil Identification: Poorly Graded Sand (SP), Olive Brown.	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.657	■ 2.928	▲ 5.051
Shear Stress @ End of Test (ksf)	○ 0.635	□ 2.648	△ 4.146
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	8.43	8.43	8.43
Dry Density (pcf)	82.1	85.4	95.6
Saturation (%)	21.6	23.4	29.8
Soil Height Before Shearing (in.)	0.9707	0.9432	0.9221
Final Moisture Content (%)	27.2	25.2	23.4

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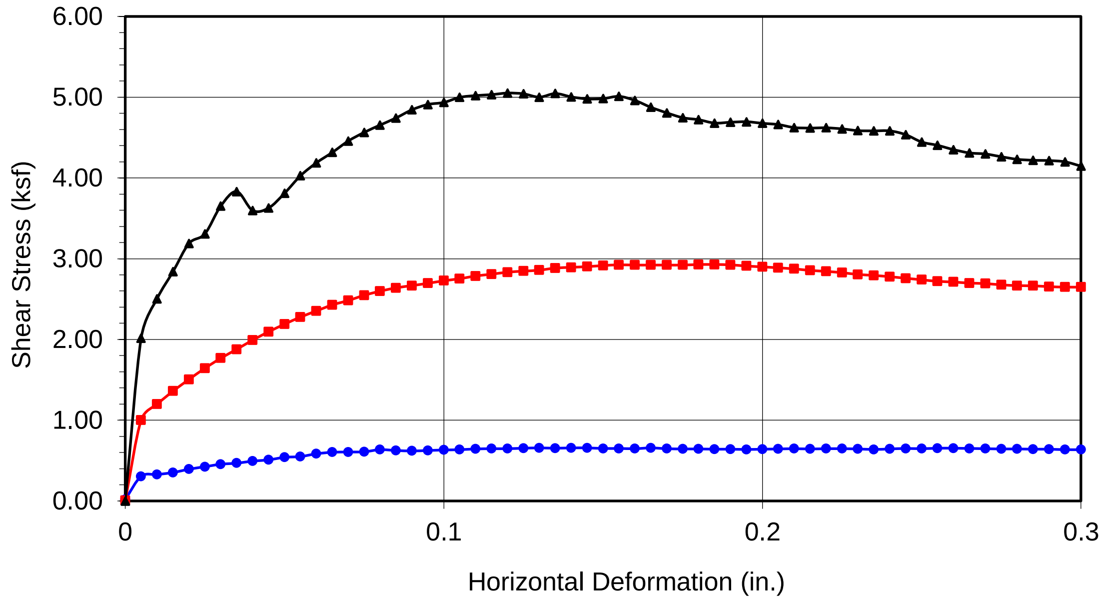
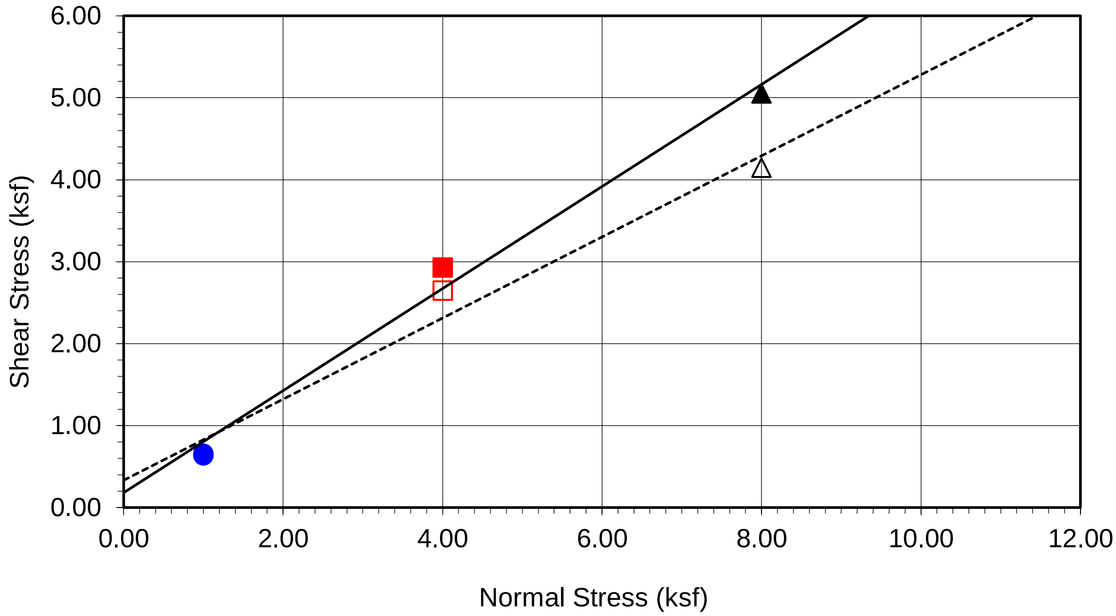
DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001
SoCal Arena/Riverside City Arena/Geo
10-20





Boring No.	**LB-4**
Sample No.	**R-8**
Depth (ft)	**30**
Sample Type:	Drive
Soil Identification: Poorly Graded Sand (SP), Olive Brown.	

Strength Parameters

	C (psf)	ϕ (°)
Peak	181	32
Ultimate	333	26

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.657	■ 2.928	▲ 5.051
Shear Stress @ End of Test (ksf)	○ 0.635	□ 2.648	△ 4.146
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	8.43	8.43	8.43
Dry Density (pcf)	82.1	85.4	95.6
Saturation (%)	21.6	23.4	29.8
Soil Height Before Shearing (in.)	0.9707	0.9432	0.9221
Final Moisture Content (%)	27.2	25.2	23.4

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

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DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name: Riverside Arena
Tested By: G. Bathala
Date: 10/22/20

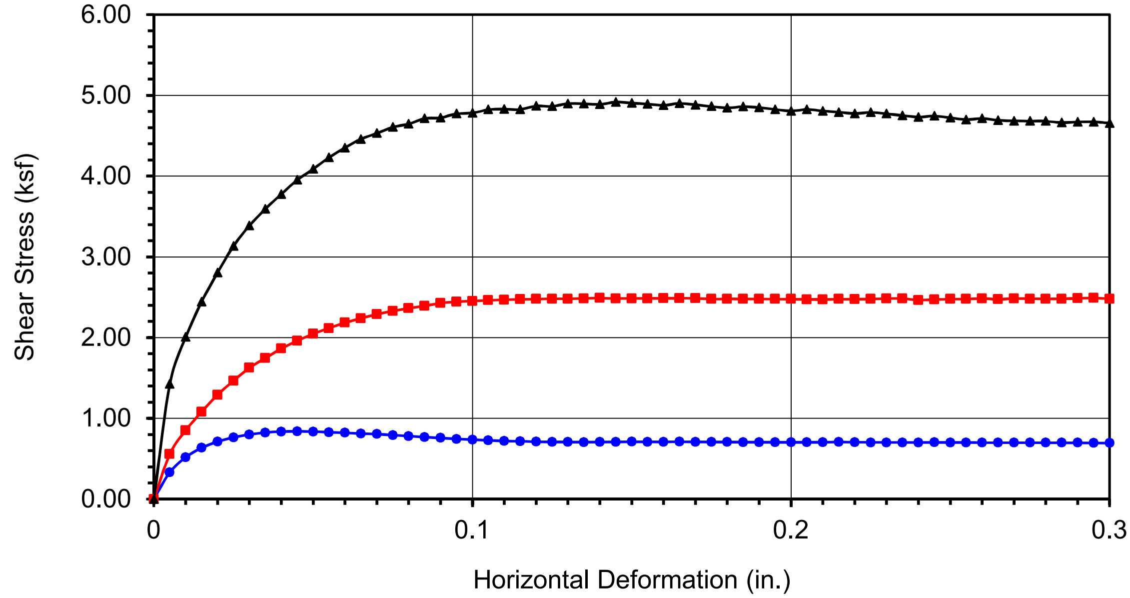
Project No.: 12915.001
Checked By: A. Santos
Date: 10/26/20

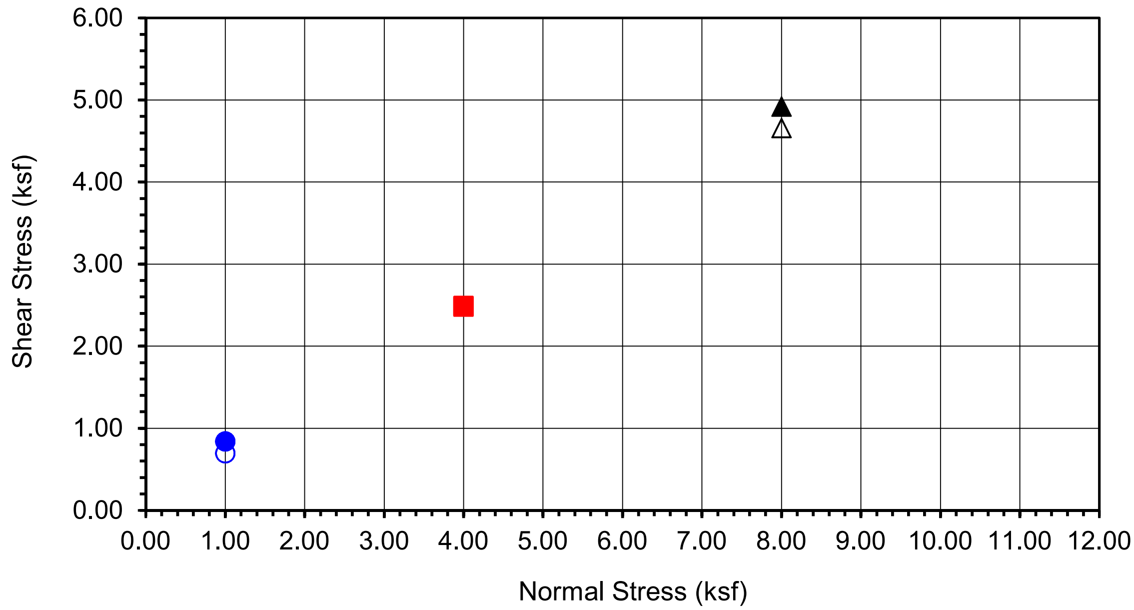
Boring No.: LB-1
Sample Type: Ring

Sample No.: R-3
Depth (ft.): 10.0

Soil Identification: Light olive brown silty sand (SM)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	173.84	182.70	187.28
Weight of Ring(gm):	41.47	43.45	45.73
Before Shearing			
Weight of Wet Sample+Cont.(gm):	193.73	193.73	193.73
Weight of Dry Sample+Cont.(gm):	183.73	183.73	183.73
Weight of Container(gm):	55.81	55.81	55.81
Vertical Rdg.(in): Initial	0.0000	0.2610	0.2494
Vertical Rdg.(in): Final	-0.0090	0.2865	0.2842
After Shearing			
Weight of Wet Sample+Cont.(gm):	185.40	181.60	210.16
Weight of Dry Sample+Cont.(gm):	163.03	151.63	183.28
Weight of Container(gm):	38.57	36.58	65.35
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-3**
Depth (ft)	**10**

Sample Type:

Ring

Soil Identification:
Light olive brown silty sand (SM)

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.839	■ 2.490	▲ 4.917
Shear Stress @ End of Test (ksf)	○ 0.695	□ 2.480	△ 4.656
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	7.82	7.82	7.82
Dry Density (pcf)	102.1	107.4	109.2
Saturation (%)	32.4	37.1	38.8
Soil Height Before Shearing (in.)	0.9910	0.9745	0.9652
Final Moisture Content (%)	18.0	26.0	22.8

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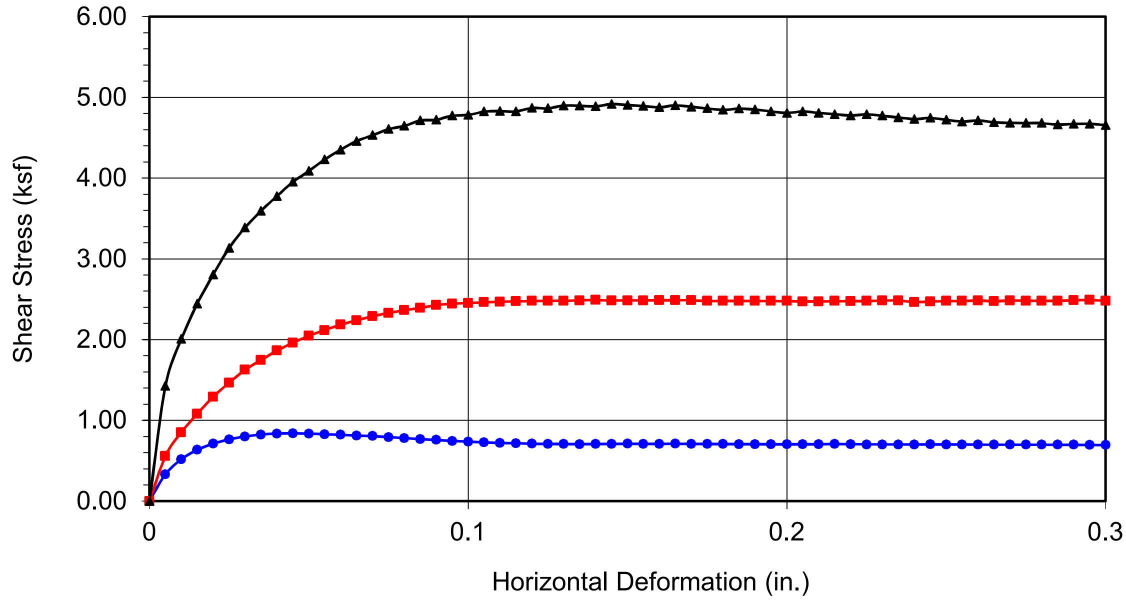
DIRECT SHEAR TEST RESULTS

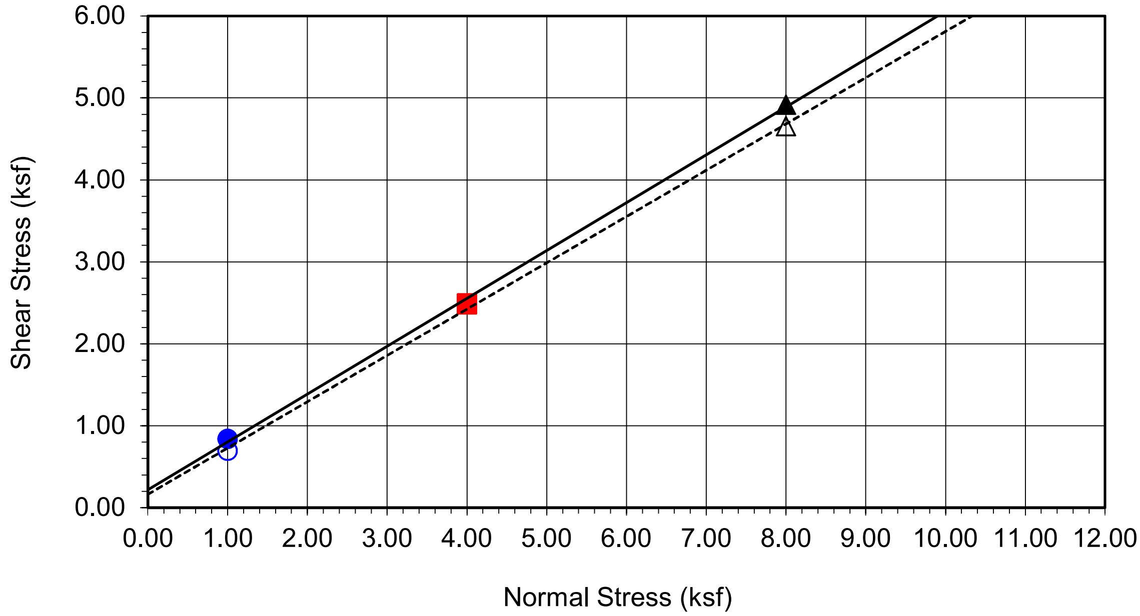
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20





Boring No.	**LB-1**
Sample No.	**R-3**
Depth (ft)	**10**
Sample Type:	Ring
Soil Identification: Light olive brown silty sand (SM)	

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	219	30
Ultimate	163	29

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.839	■ 2.490	▲ 4.917
Shear Stress @ End of Test (ksf)	○ 0.695	□ 2.480	△ 4.656
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	7.82	7.82	7.82
Dry Density (pcf)	102.1	107.4	109.2
Saturation (%)	32.4	37.1	38.8
Soil Height Before Shearing (in.)	0.9910	0.9745	0.9652
Final Moisture Content (%)	18.0	26.0	22.8

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

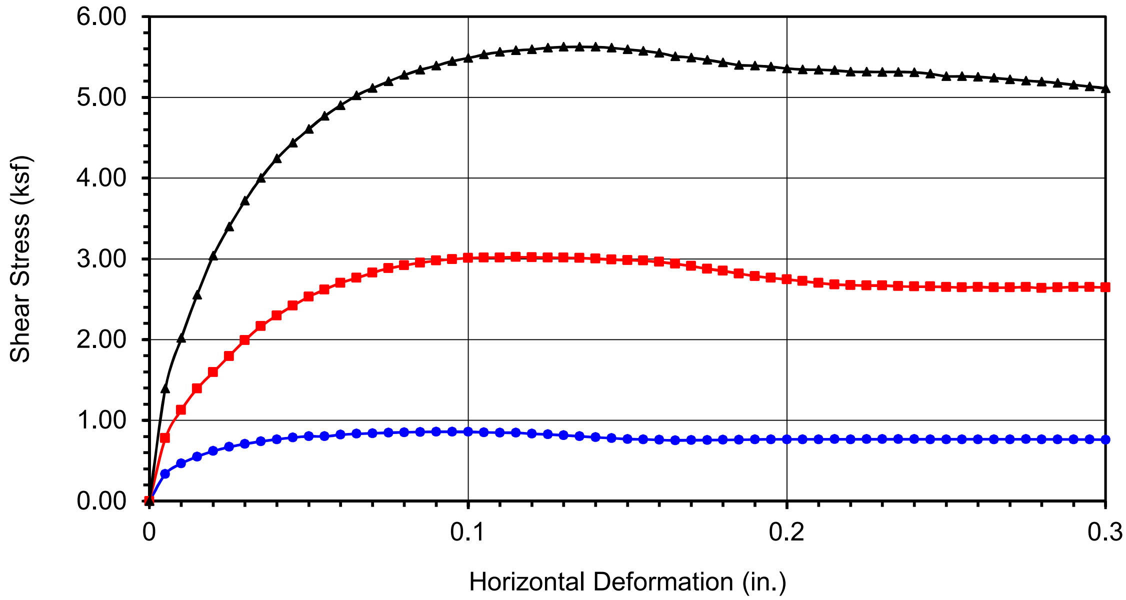
10-20

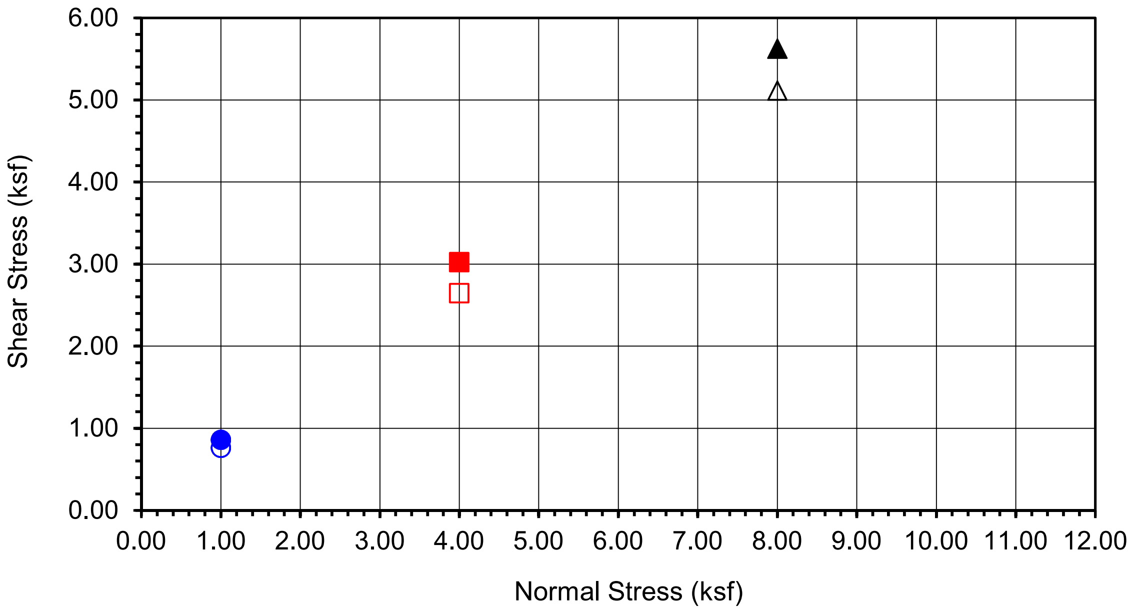
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name:	Riverside Arena	Tested By:	G. Bathala	Date:	10/22/20
Project No.:	12915.001	Checked By:	A. Santos	Date:	10/26/20
Boring No.:	LB-1	Sample Type:	Ring		
Sample No.:	R-4	Depth (ft.):	12.0		
Soil Identification:	Olive gray silty sand (SM)				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	171.27	168.43	172.98
Weight of Ring(gm):	44.08	40.20	44.25
Before Shearing			
Weight of Wet Sample+Cont.(gm):	206.42	206.42	206.42
Weight of Dry Sample+Cont.(gm):	200.94	200.94	200.94
Weight of Container(gm):	68.92	68.92	68.92
Vertical Rdg.(in): Initial	0.2554	0.2491	0.0000
Vertical Rdg.(in): Final	0.2634	0.2738	-0.0347
After Shearing			
Weight of Wet Sample+Cont.(gm):	191.71	200.03	202.39
Weight of Dry Sample+Cont.(gm):	169.53	178.79	181.05
Weight of Container(gm):	52.65	58.53	59.24
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-4**
Depth (ft)	**12**

Sample Type:

Ring

Soil Identification:
Olive gray silty sand (SM)

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.858	■ 3.021	▲ 5.624
Shear Stress @ End of Test (ksf)	○ 0.761	□ 2.644	△ 5.112
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	4.15	4.15	4.15
Dry Density (pcf)	101.6	102.4	102.8
Saturation (%)	17.0	17.3	17.5
Soil Height Before Shearing (in.)	0.9920	0.9753	0.9653
Final Moisture Content (%)	19.0	17.7	17.5

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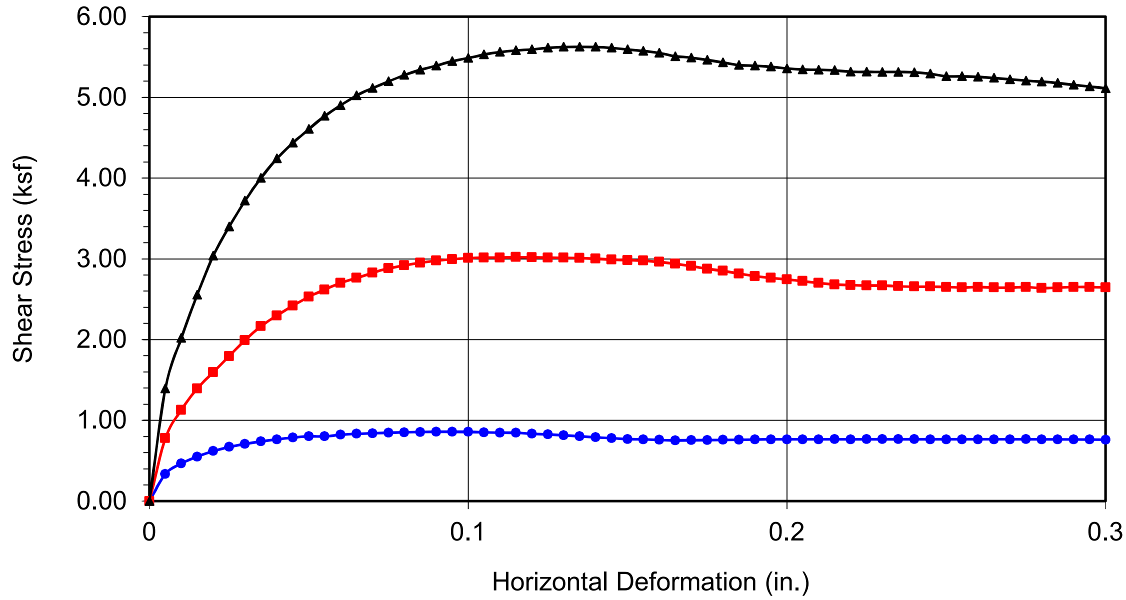
DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

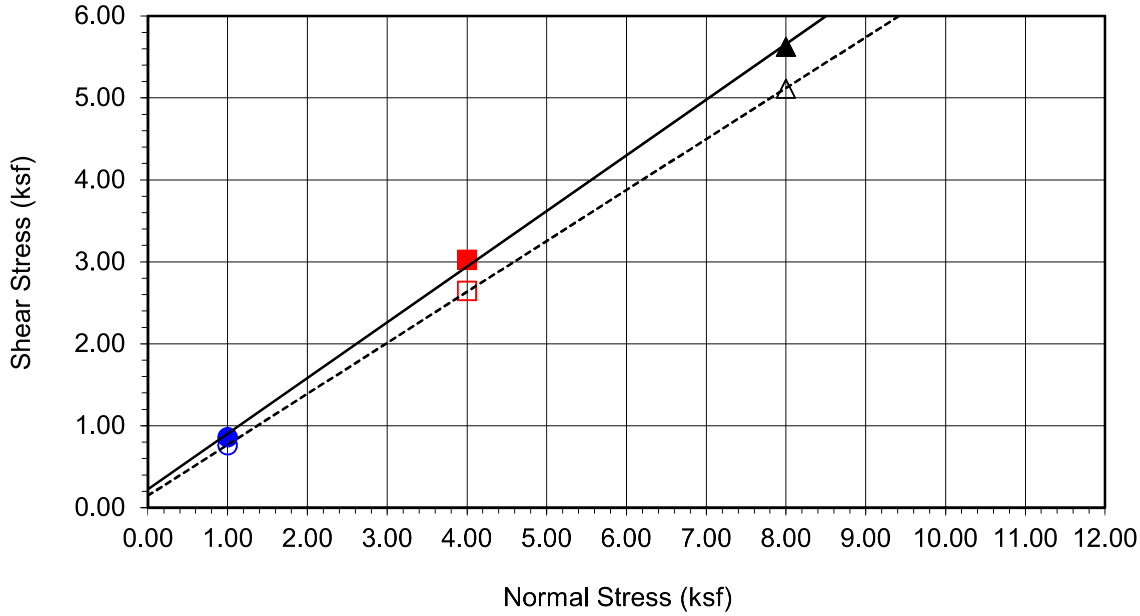
Project No.: 12915.001

Riverside Arena

10-20

DS LB-1, R-4 @ 12





Boring No.	**LB-1**
Sample No.	**R-4**
Depth (ft)	**12**
Sample Type:	Ring

Soil Identification:
Olive gray silty sand (SM)

Strength Parameters

	C (psf)	ϕ (°)
Peak	224	34
Ultimate	147	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.858	■ 3.021	▲ 5.624
Shear Stress @ End of Test (ksf)	○ 0.761	□ 2.644	△ 5.112
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	4.15	4.15	4.15
Dry Density (pcf)	101.6	102.4	102.8
Saturation (%)	17.0	17.3	17.5
Soil Height Before Shearing (in.)	0.9920	0.9753	0.9653
Final Moisture Content (%)	19.0	17.7	17.5

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20

DS LB-1, R-4 @ 12

DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

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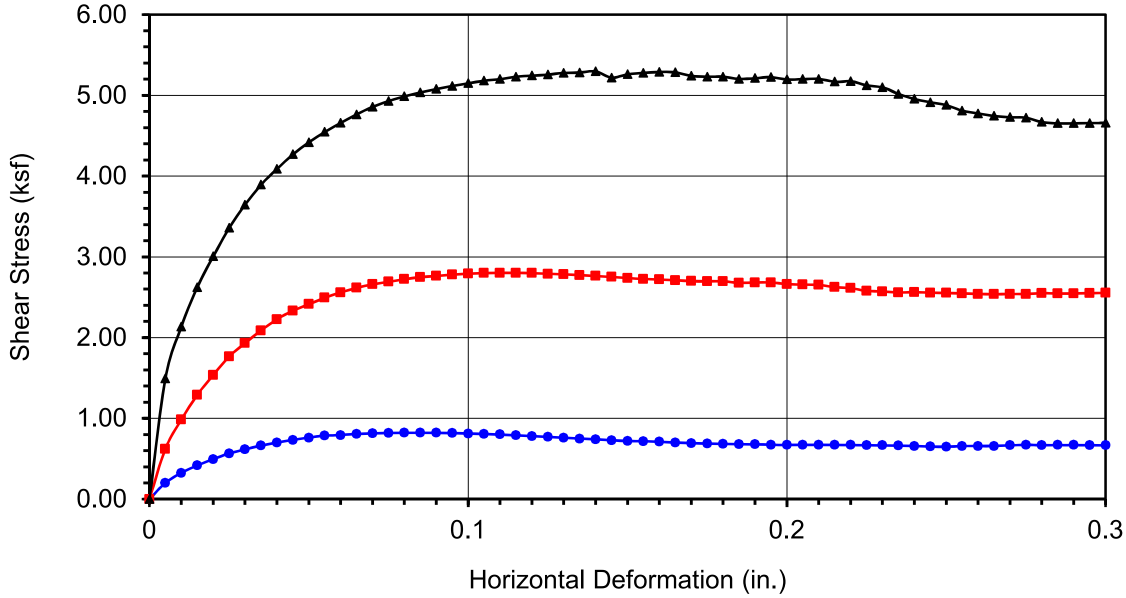
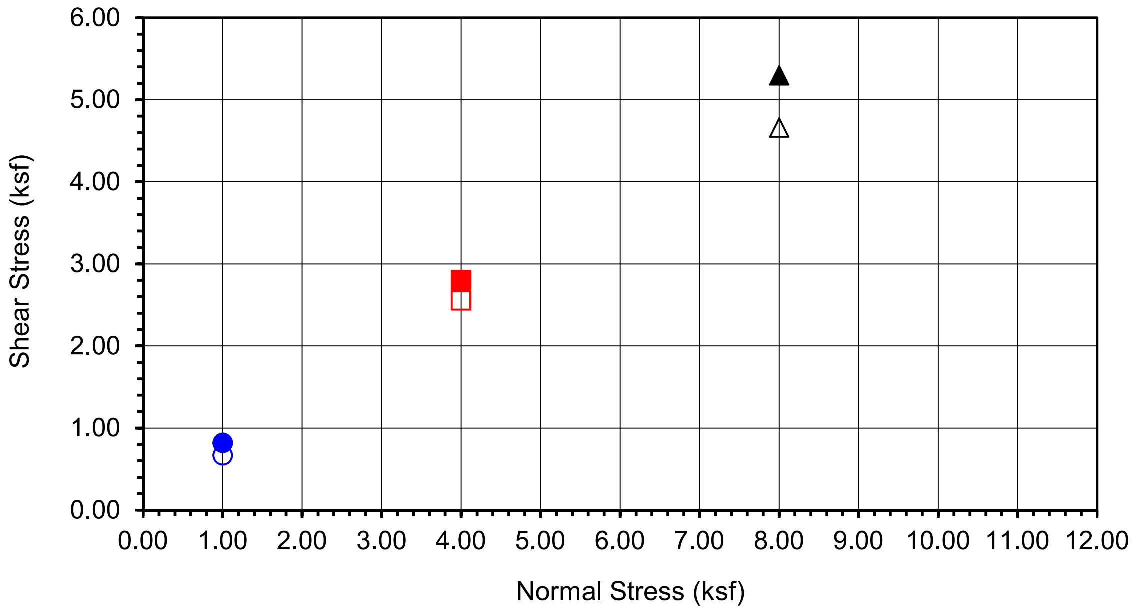
Project Name:	Riverside Arena	Tested By:	G. Bathala	Date:	10/18/20
Project No.:	12915.001	Checked By:	A. Santos	Date:	10/26/20
Boring No.:	LB-1	Sample Type:	Ring		
Sample No.:	R-5	Depth (ft.):	15.0		
Soil Identification:	Olive gray silty sand (SM)				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	159.74	165.35	163.21
Weight of Ring(gm):	42.94	46.22	43.12
Before Shearing			
Weight of Wet Sample+Cont.(gm):	141.20	141.20	141.20
Weight of Dry Sample+Cont.(gm):	139.59	139.59	139.59
Weight of Container(gm):	38.57	38.57	38.57
Vertical Rdg.(in): Initial	0.0000	0.2384	0.2538
Vertical Rdg.(in): Final	-0.0112	0.2665	0.2877
After Shearing			
Weight of Wet Sample+Cont.(gm):	197.11	204.85	200.55
Weight of Dry Sample+Cont.(gm):	173.45	179.63	175.96
Weight of Container(gm):	65.87	69.39	65.92
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-5**
Depth (ft)	**15**

Sample Type:

Ring

Soil Identification:
Olive gray silty sand (SM)

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.821	■ 2.801	▲ 5.297
Shear Stress @ End of Test (ksf)	○ 0.666	□ 2.553	△ 4.659
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	1.59	1.59	1.59
Dry Density (pcf)	95.6	97.5	98.3
Saturation (%)	5.6	5.9	6.0
Soil Height Before Shearing (in.)	0.9888	0.9719	0.9661
Final Moisture Content (%)	22.0	22.9	22.3

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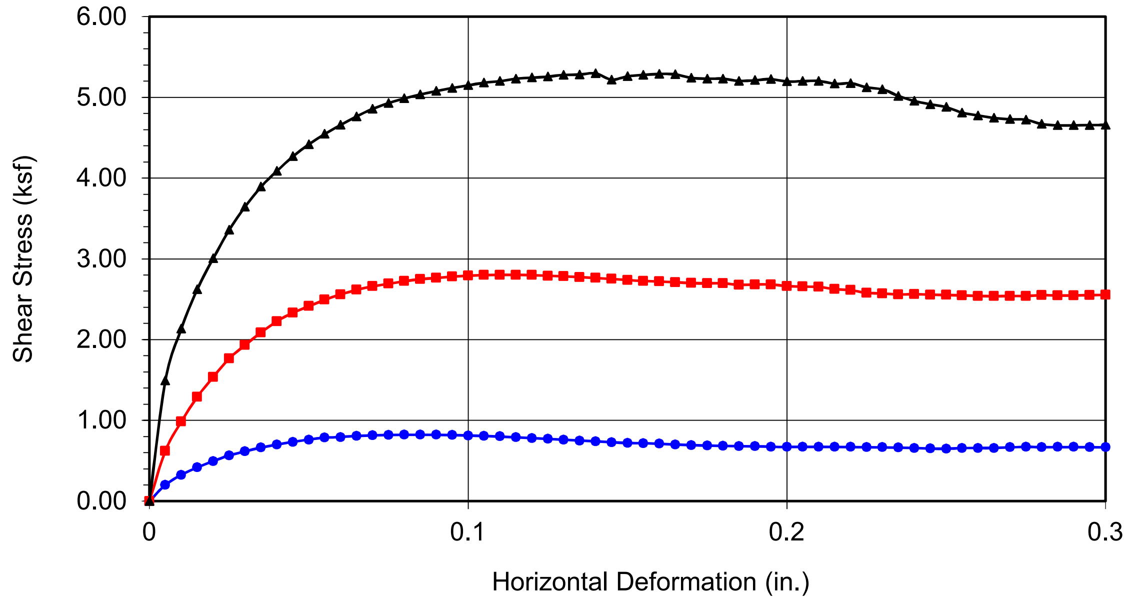
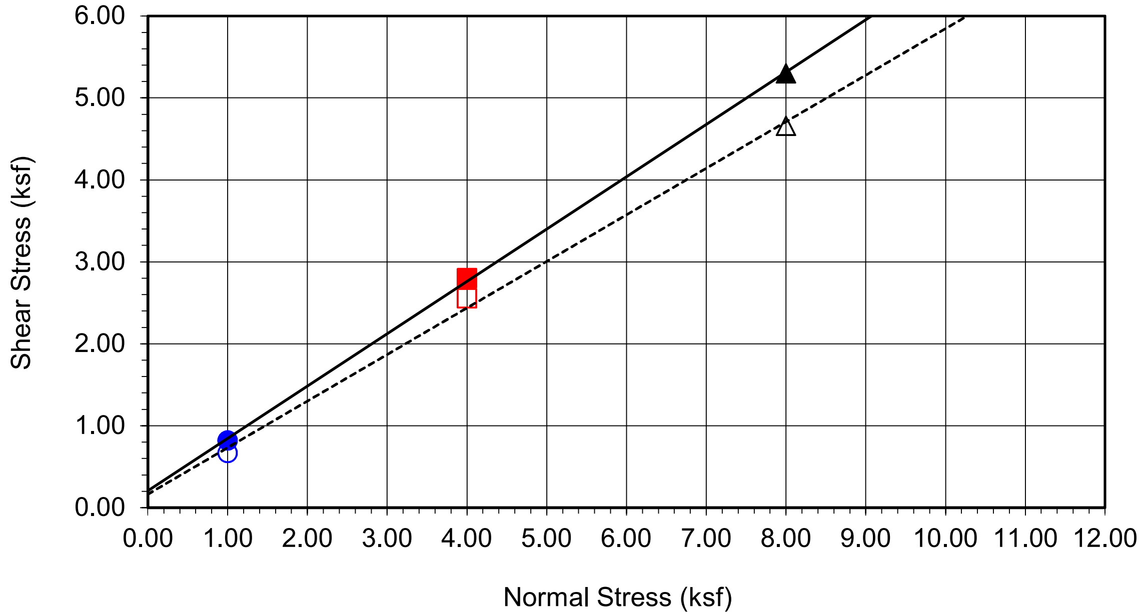
DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20





Boring No.	**LB-1**
Sample No.	**R-5**
Depth (ft)	**15**
Sample Type:	Ring

Soil Identification:
Olive gray silty sand (SM)

Strength Parameters

	C (psf)	ϕ (°)
Peak	206	33
Ultimate	164	30

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.821	■ 2.801	▲ 5.297
Shear Stress @ End of Test (ksf)	○ 0.666	□ 2.553	△ 4.659
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	1.59	1.59	1.59
Dry Density (pcf)	95.6	97.5	98.3
Saturation (%)	5.6	5.9	6.0
Soil Height Before Shearing (in.)	0.9888	0.9719	0.9661
Final Moisture Content (%)	22.0	22.9	22.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20

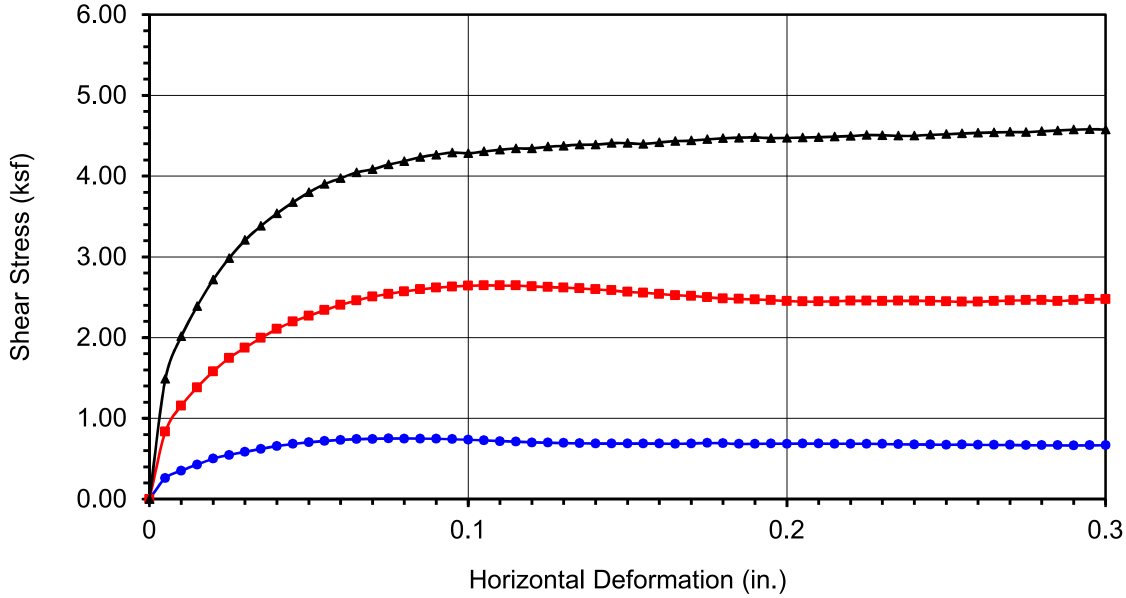
DIRECT SHEAR TEST

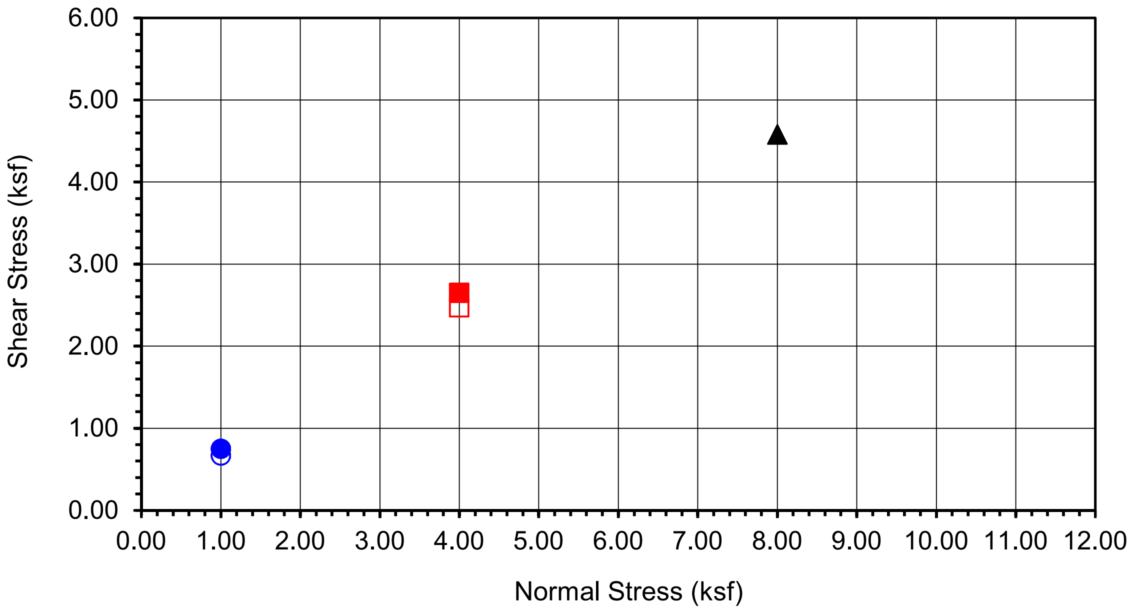
Consolidated Drained - ASTM D 3080

Leighton

Project Name:	Riverside Arena	Tested By:	G. Bathala	Date:	10/23/20
Project No.:	12915.001	Checked By:	A. Santos	Date:	10/26/20
Boring No.:	LB-4	Sample Type:	Ring		
Sample No.:	R-2	Depth (ft.):	7.0		
Soil Identification:	Light olive brown silty sand (SM)				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	173.31	170.14	174.76
Weight of Ring(gm):	46.35	41.13	41.69
Before Shearing			
Weight of Wet Sample+Cont.(gm):	181.02	181.02	181.02
Weight of Dry Sample+Cont.(gm):	174.53	174.53	174.53
Weight of Container(gm):	57.31	57.31	57.31
Vertical Rdg.(in): Initial	0.2606	0.2365	0.0000
Vertical Rdg.(in): Final	0.2692	0.2655	-0.0434
After Shearing			
Weight of Wet Sample+Cont.(gm):	199.74	201.66	211.11
Weight of Dry Sample+Cont.(gm):	173.23	178.91	187.17
Weight of Container(gm):	55.55	58.19	64.18
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**R-2**
Depth (ft)	**7**
Sample Type: Ring	
Soil Identification: Light olive brown silty sand (SM)	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.751	■ 2.647	▲ 4.580
Shear Stress @ End of Test (ksf)	○ 0.666	□ 2.474	△ 4.577
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	5.54	5.54	5.54
Dry Density (pcf)	100.0	101.7	104.9
Saturation (%)	21.8	22.7	24.6
Soil Height Before Shearing (in.)	0.9914	0.9710	0.9566
Final Moisture Content (%)	22.5	18.8	19.5

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DIRECT SHEAR TEST RESULTS

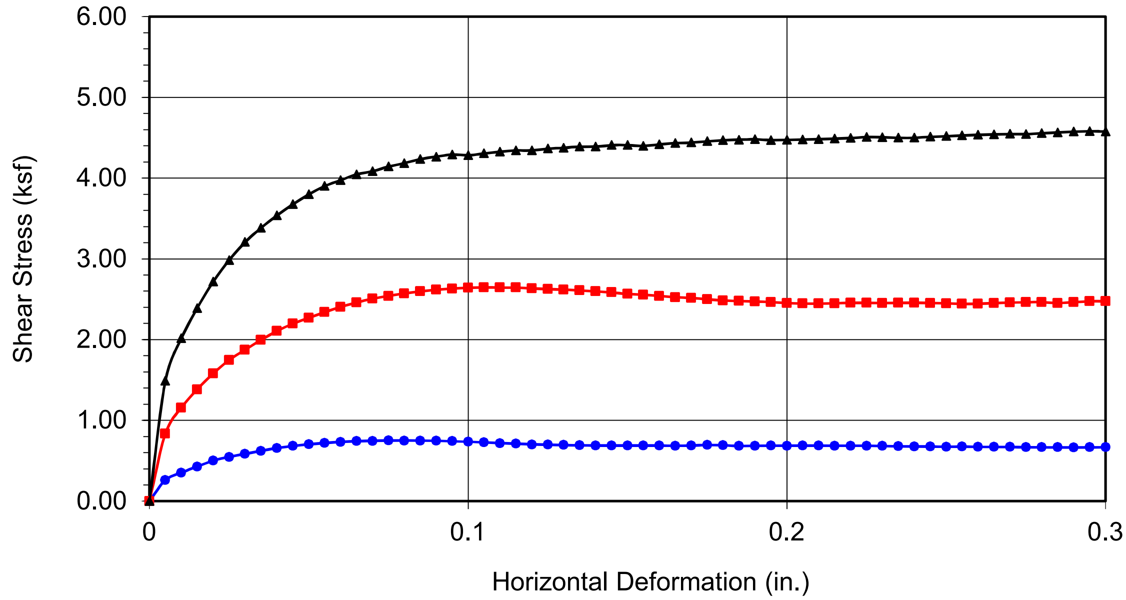
Consolidated Drained - ASTM D 3080

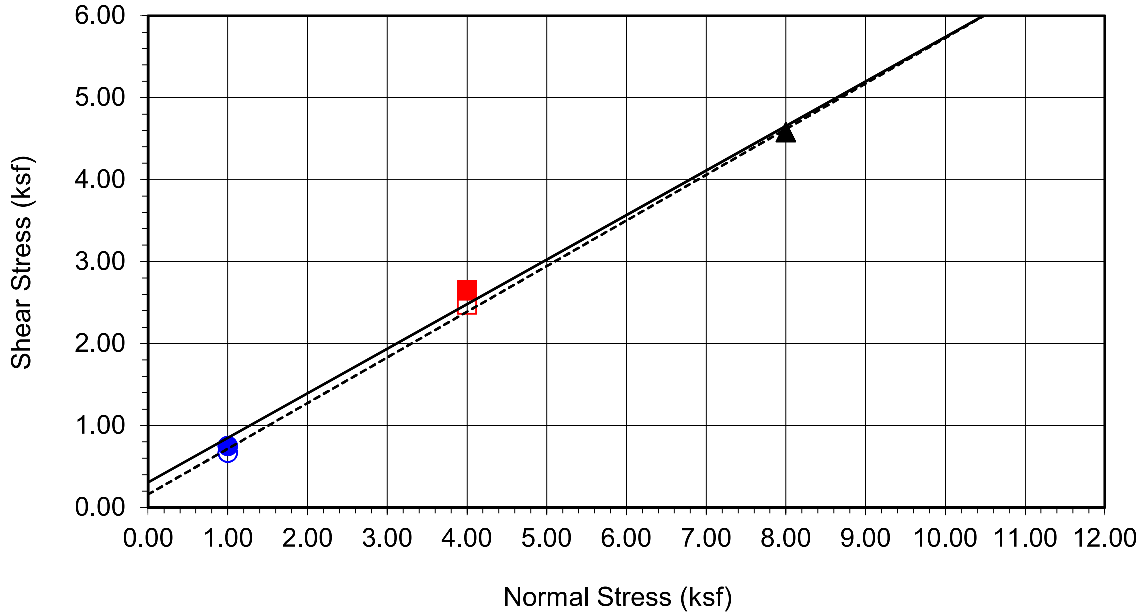
Project No.: 12915.001

Riverside Arena

10-20

DS LB-4, R-2 @ 7





Boring No.	**LB-4**
Sample No.	**R-2**
Depth (ft)	**7**
Sample Type:	Ring
Soil Identification: Light olive brown silty sand (SM)	

Strength Parameters

	C (psf)	ϕ (°)
Peak	304	29
Ultimate	159	29

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.751	■ 2.647	▲ 4.580
Shear Stress @ End of Test (ksf)	○ 0.666	□ 2.474	△ 4.577
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	5.54	5.54	5.54
Dry Density (pcf)	100.0	101.7	104.9
Saturation (%)	21.8	22.7	24.6
Soil Height Before Shearing (in.)	0.9914	0.9710	0.9566
Final Moisture Content (%)	22.5	18.8	19.5

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20

DS LB-4, R-2 @ 7

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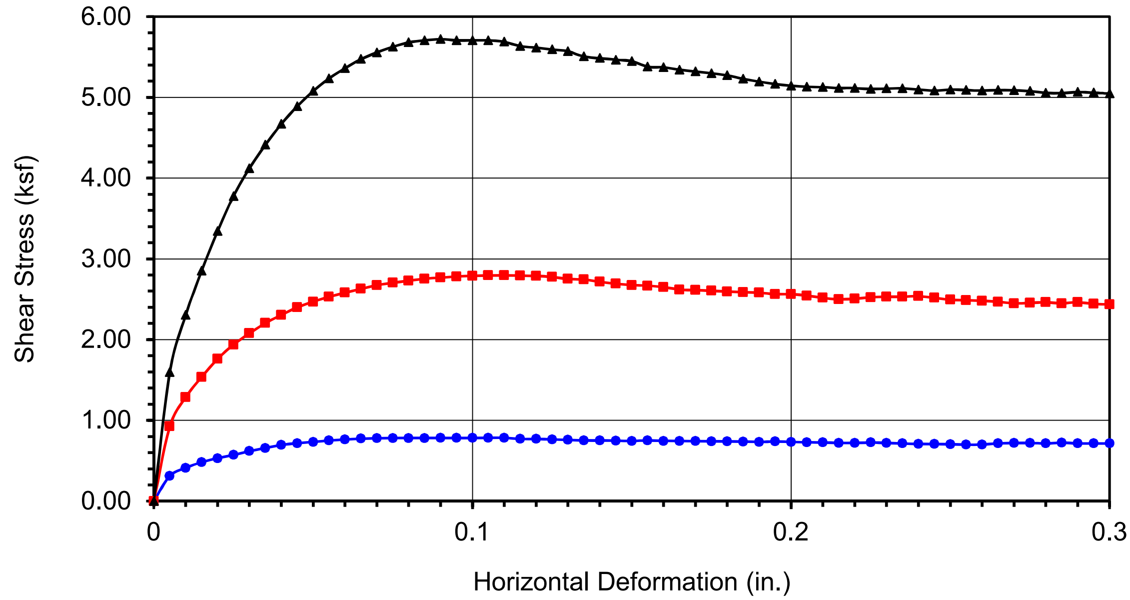
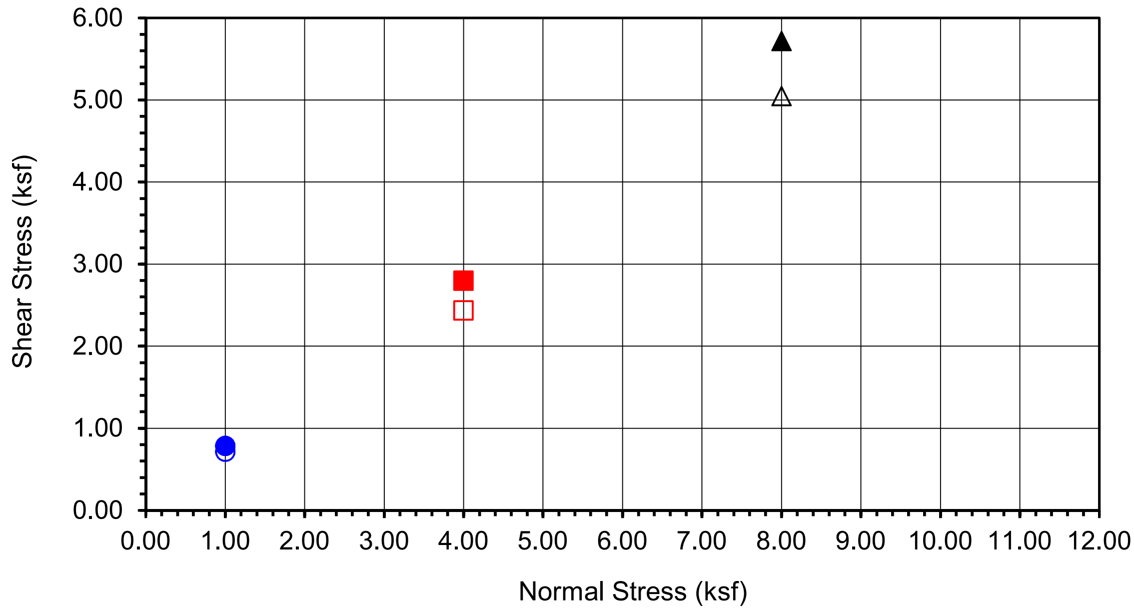
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name:	Riverside Arena	Tested By:	G. Bathala	Date:	10/23/20
Project No.:	12915.001	Checked By:	A. Santos	Date:	10/26/20
Boring No.:	LB-4	Sample Type:	Ring		
Sample No.:	R-3	Depth (ft.):	10.0		
Soil Identification:	Light olive brown silty sand (SM)				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	171.35	171.34	174.46
Weight of Ring(gm):	43.60	43.19	45.76
Before Shearing			
Weight of Wet Sample+Cont.(gm):	188.37	188.37	188.37
Weight of Dry Sample+Cont.(gm):	185.75	185.75	185.75
Weight of Container(gm):	78.64	78.64	78.64
Vertical Rdg.(in): Initial	0.0000	0.2590	0.2524
Vertical Rdg.(in): Final	-0.0149	0.2803	0.2841
After Shearing			
Weight of Wet Sample+Cont.(gm):	197.57	195.94	202.73
Weight of Dry Sample+Cont.(gm):	176.21	175.35	179.18
Weight of Container(gm):	56.09	57.96	56.86
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**R-3**
Depth (ft)	**10**

Sample Type:

Ring

Soil Identification:
Light olive brown silty sand (SM)

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.783	■ 2.795	▲ 5.719
Shear Stress @ End of Test (ksf)	○ 0.714	□ 2.436	△ 5.046
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	2.45	2.45	2.45
Dry Density (pcf)	103.7	104.0	104.5
Saturation (%)	10.6	10.6	10.8
Soil Height Before Shearing (in.)	0.9851	0.9787	0.9683
Final Moisture Content (%)	17.8	17.5	19.3

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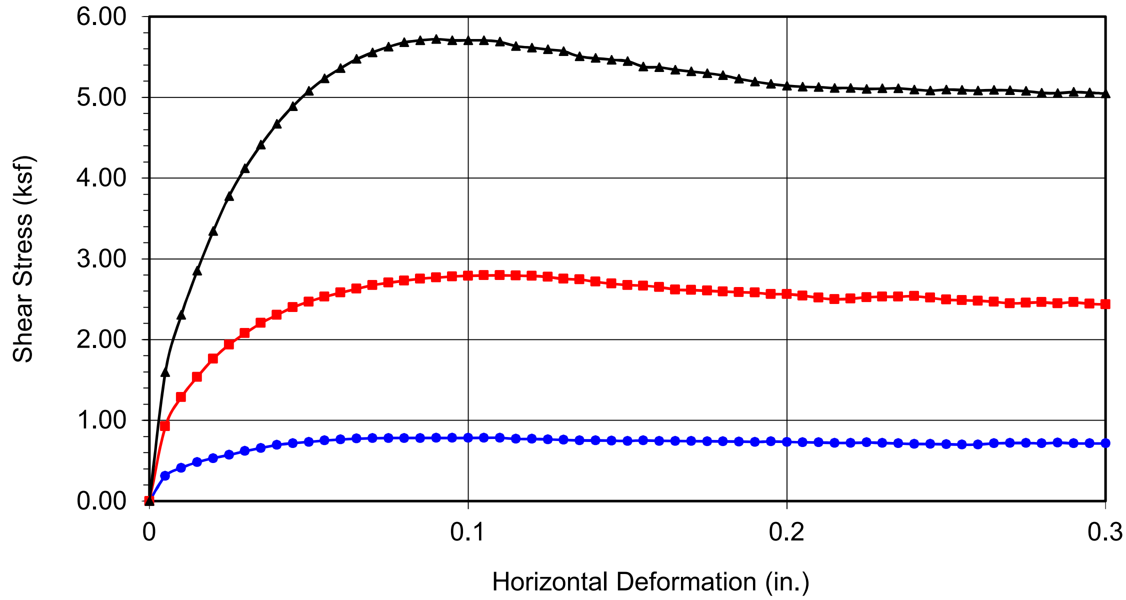
DIRECT SHEAR TEST RESULTS

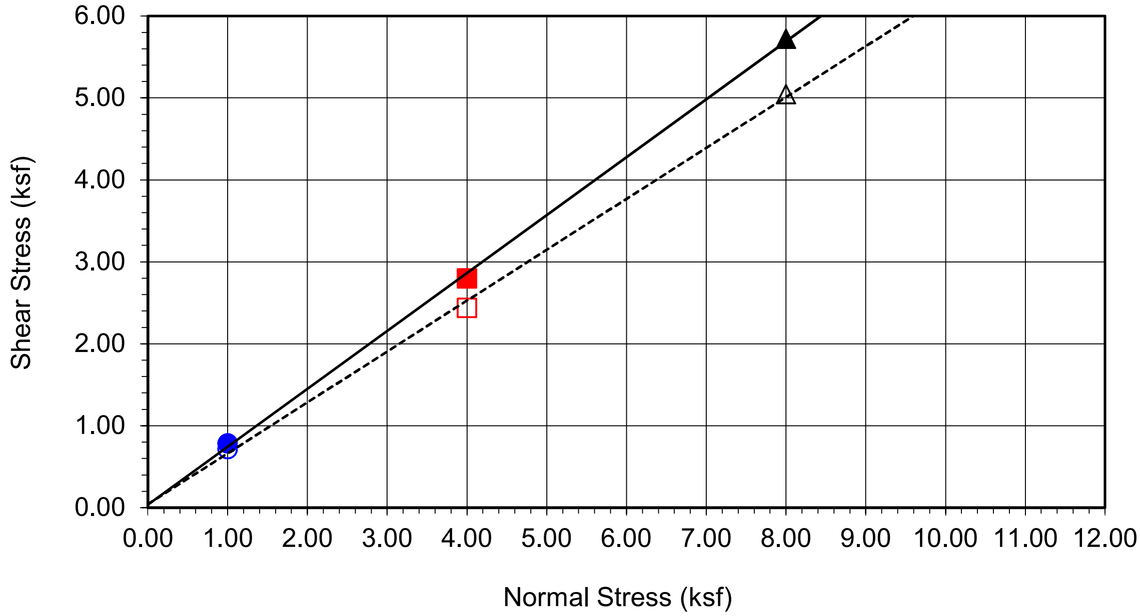
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20





Boring No.	**LB-4**
Sample No.	**R-3**
Depth (ft)	**10**
Sample Type:	Ring

Soil Identification:
Light olive brown silty sand (SM)

Strength Parameters

	C (psf)	ϕ (°)
Peak	37	35
Ultimate	42	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.783	■ 2.795	▲ 5.719
Shear Stress @ End of Test (ksf)	○ 0.714	□ 2.436	△ 5.046
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	2.45	2.45	2.45
Dry Density (pcf)	103.7	104.0	104.5
Saturation (%)	10.6	10.6	10.8
Soil Height Before Shearing (in.)	0.9851	0.9787	0.9683
Final Moisture Content (%)	17.8	17.5	19.3

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DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20

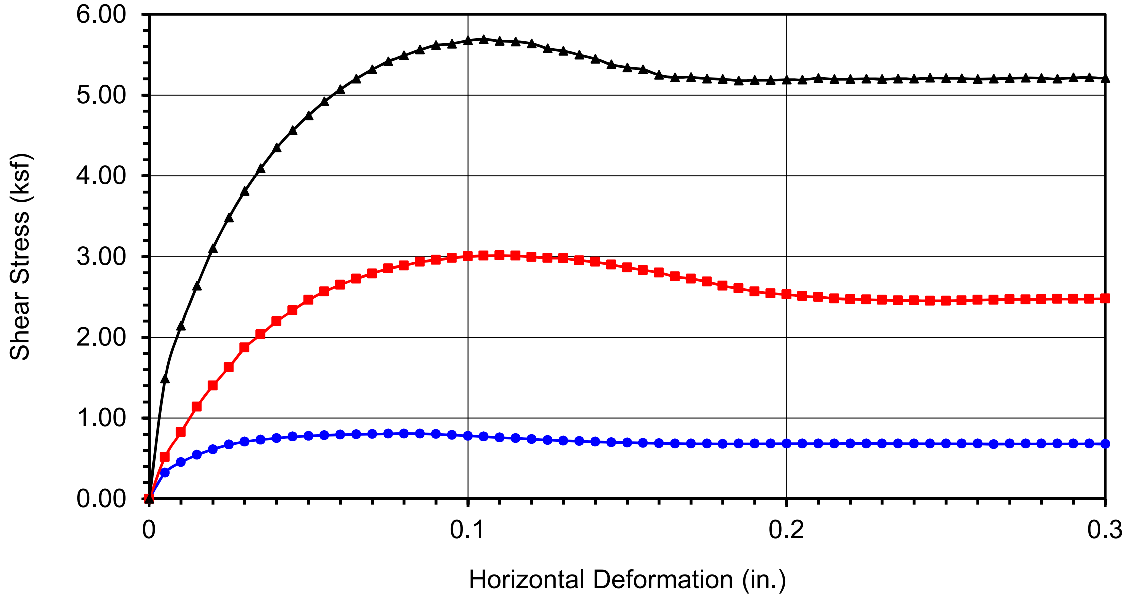
DIRECT SHEAR TEST

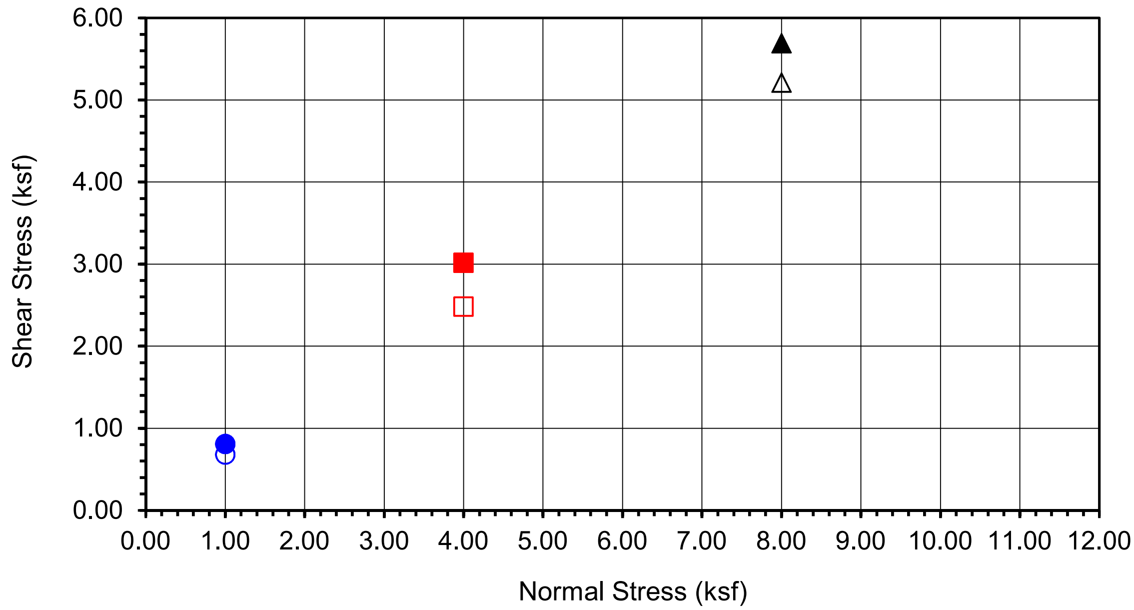
Consolidated Drained - ASTM D 3080

Leighton

Project Name:	Riverside Arena	Tested By:	G. Bathala	Date:	10/18/20
Project No.:	12915.001	Checked By:	A. Santos	Date:	10/26/20
Boring No.:	LB-4	Sample Type:	Ring		
Sample No.:	R-5	Depth (ft.):	15.0		
Soil Identification:	Light olive brown silty sand (SM)				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	162.72	173.82	178.30
Weight of Ring(gm):	41.82	44.64	45.78
Before Shearing			
Weight of Wet Sample+Cont.(gm):	172.44	172.44	172.44
Weight of Dry Sample+Cont.(gm):	168.52	168.52	168.52
Weight of Container(gm):	59.54	59.54	59.54
Vertical Rdg.(in): Initial	0.0000	0.2522	0.2592
Vertical Rdg.(in): Final	-0.0146	0.2773	0.2916
After Shearing			
Weight of Wet Sample+Cont.(gm):	200.33	198.78	203.12
Weight of Dry Sample+Cont.(gm):	175.95	174.94	181.10
Weight of Container(gm):	64.92	56.84	57.30
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**R-5**
Depth (ft)	**15**
Sample Type: Ring	
Soil Identification: Light olive brown silty sand (SM)	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.808	■ 3.015	▲ 5.690
Shear Stress @ End of Test (ksf)	○ 0.679	□ 2.480	△ 5.209
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	3.60	3.60	3.60
Dry Density (pcf)	97.1	103.7	106.4
Saturation (%)	13.2	15.5	16.6
Soil Height Before Shearing (in.)	0.9854	0.9749	0.9676
Final Moisture Content (%)	22.0	20.2	17.8

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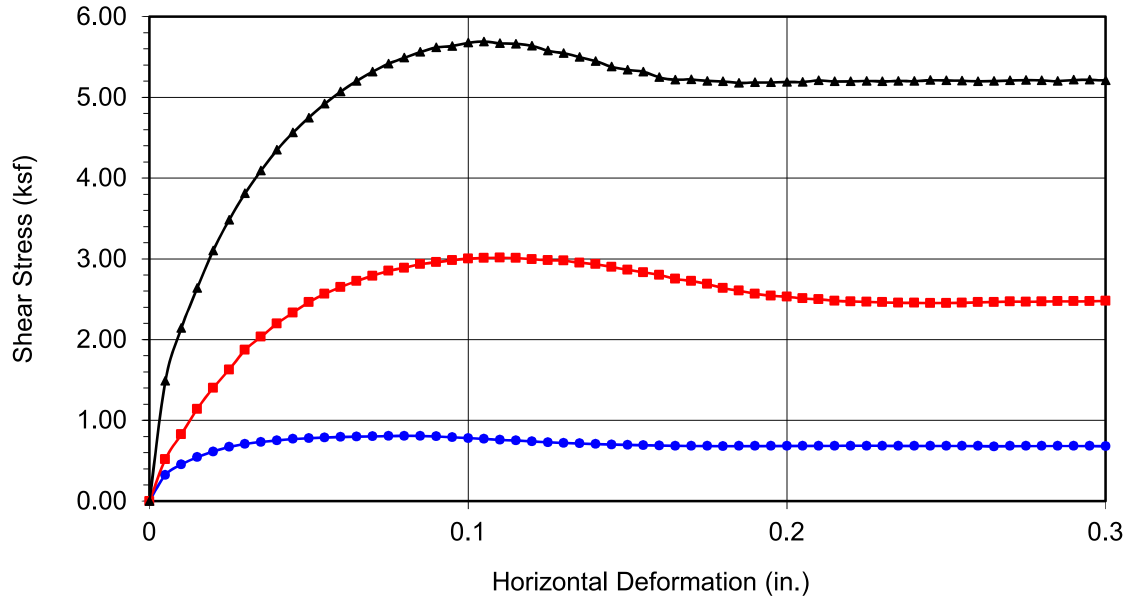
DIRECT SHEAR TEST RESULTS

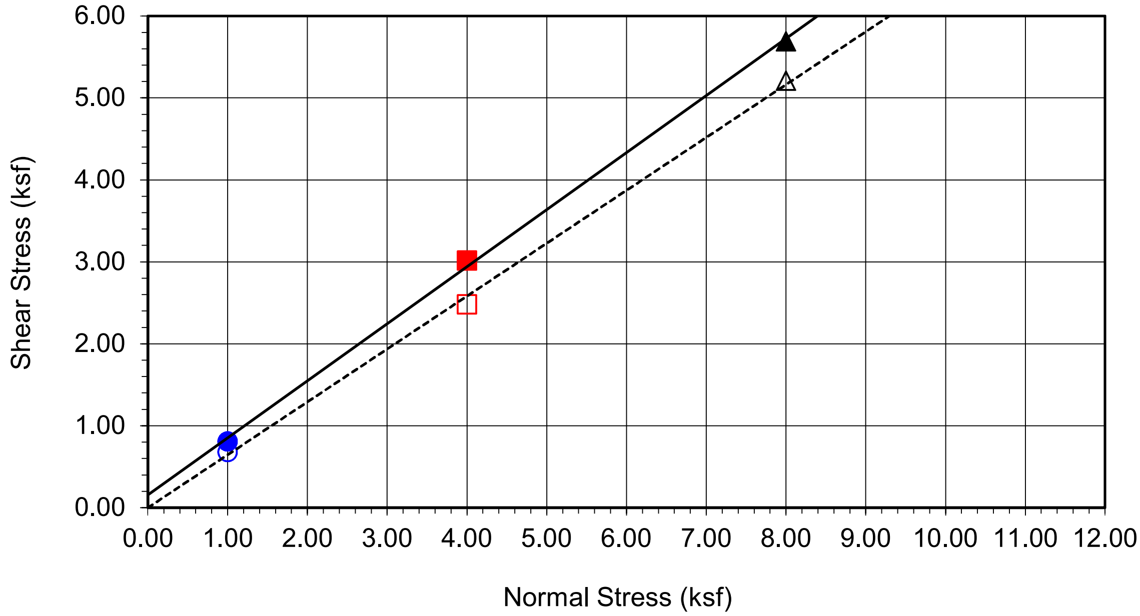
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20





Boring No.	**LB-4**
Sample No.	**R-5**
Depth (ft)	**15**
Sample Type:	Ring

Soil Identification:
Light olive brown silty sand (SM)

Strength Parameters

	C (psf)	ϕ (°)
Peak	156	35
Ultimate	0	33

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.808	■ 3.015	▲ 5.690
Shear Stress @ End of Test (ksf)	○ 0.679	□ 2.480	△ 5.209
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	3.60	3.60	3.60
Dry Density (pcf)	97.1	103.7	106.4
Saturation (%)	13.2	15.5	16.6
Soil Height Before Shearing (in.)	0.9854	0.9749	0.9676
Final Moisture Content (%)	22.0	20.2	17.8

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DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

Riverside Arena

10-20

Leighton

EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	SoCal Arena/Riverside City Arena	Tested By:	M. Vinet	Date:	10/20/20
Project No. :	12915.001	Checked By:	M. Vinet	Date:	10/21/20
Boring No.:	LB-1	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), Olive Brown.				

Dry Wt. of Soil + Cont. (gm.)	27780.0
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	27780.0
Weight Soil Retained on #4 Sieve	2386.2
Percent Passing # 4	91.4

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	1.0052
Wt. Comp. Soil + Mold (gm.)	590.0	608.7
Wt. of Mold (gm.)	187.0	187.0
Specific Gravity (Assumed)	2.70	2.70
Container No.	7	7
Wet Wt. of Soil + Cont. (gm.)	578.8	608.7
Dry Wt. of Soil + Cont. (gm.)	552.8	368.0
Wt. of Container (gm.)	278.8	187.0
Moisture Content (%)	9.5	14.6
Wet Density (pcf)	121.6	126.5
Dry Density (pcf)	111.0	110.4
Void Ratio	0.519	0.526
Total Porosity	0.341	0.345
Pore Volume (cc)	70.7	71.8
Degree of Saturation (%) [S meas]	**49.5**	**74.8**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
10/20/20	13:15	1.0	0	0.5000
10/20/20	13:25	1.0	10	0.5000
	Add Distilled Water to the Specimen			
10/21/20	6:00	1.0	995	0.5052
10/21/20	7:00	1.0	1055	0.5052

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	5.2
Expansion Index (Report) =	Nearest Whole Number or Zero (0) if Initial Height is > than Final Heigh	**5**

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EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	SoCal Arena/Riverside City Arena	Tested By:	M. Vinet	Date:	10/20/20
Project No. :	12915.001	Checked By:	M. Vinet	Date:	10/21/20
Boring No.:	LB-1	Depth:	14.0		
Sample No. :	B-2	Location:	N/A		
Sample Description:	Poorly Graded Sand (SP), Olive Brown				

Dry Wt. of Soil + Cont. (gm.)	1425.6
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	1425.6
Weight Soil Retained on #4 Sieve	98.2
Percent Passing # 4	93.1

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9990
Wt. Comp. Soil + Mold (gm.)	600.0	619.6
Wt. of Mold (gm.)	200.0	200.0
Specific Gravity (Assumed)	2.70	2.70
Container No.	8	8
Wet Wt. of Soil + Cont. (gm.)	578.8	619.6
Dry Wt. of Soil + Cont. (gm.)	551.5	363.6
Wt. of Container (gm.)	278.8	200.0
Moisture Content (%)	10.0	15.4
Wet Density (pcf)	120.7	126.7
Dry Density (pcf)	109.7	109.8
Void Ratio	0.537	0.535
Total Porosity	0.349	0.349
Pore Volume (cc)	72.3	72.1
Degree of Saturation (%) [S meas]	**50.3**	**77.6**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
10/20/20	13:00	1.0	0	0.5000
10/20/20	13:10	1.0	10	0.5000
	Add Distilled Water to the Specimen			
10/21/20	6:00	1.0	1010	0.4990
10/21/20	7:00	1.0	1070	0.4990

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-1.0
Expansion Index (Report) =	Nearest Whole Number or Zero (0) if Initial Height is > than Final Heigh	**0**

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EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	SoCal Arena/Riverside City Arena	Tested By:	M. Vinet	Date:	10/20/20
Project No. :	12915.001	Checked By:	M. Vinet	Date:	10/21/20
Boring No.:	LB-4	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), Olive Brown				

Dry Wt. of Soil + Cont. (gm.)	1611.3
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	1611.3
Weight Soil Retained on #4 Sieve	102.3
Percent Passing # 4	93.7

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9999
Wt. Comp. Soil + Mold (gm.)	595.3	617.6
Wt. of Mold (gm.)	191.2	191.2
Specific Gravity (Assumed)	2.70	2.70
Container No.	9	9
Wet Wt. of Soil + Cont. (gm.)	578.8	617.6
Dry Wt. of Soil + Cont. (gm.)	552.8	369.0
Wt. of Container (gm.)	278.8	191.2
Moisture Content (%)	9.5	15.5
Wet Density (pcf)	121.9	128.6
Dry Density (pcf)	111.3	111.3
Void Ratio	0.514	0.514
Total Porosity	0.340	0.340
Pore Volume (cc)	70.3	70.3
Degree of Saturation (%) [S meas]	**49.9**	**81.6**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
10/20/20	13:20	1.0	0	0.5000
10/20/20	13:30	1.0	10	0.5000
	Add Distilled Water to the Specimen			
10/21/20	6:00	1.0	990	0.4999
10/21/20	7:00	1.0	1050	0.4999

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-0.1
Expansion Index (Report) =	Nearest Whole Number or Zero (0) if Initial Height is > than Final Heigh	**0**

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EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	SoCal Arena/Riverside City Arena	Tested By:	M. Vinet	Date:	10/20/20
Project No. :	12915.001	Checked By:	M. Vinet	Date:	10/21/20
Boring No.:	P-1	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Poorly Graded Sand with Silt (SP-SM), Olive Brown.				

Dry Wt. of Soil + Cont. (gm.)	2006.9
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	2006.9
Weight Soil Retained on #4 Sieve	90.1
Percent Passing # 4	95.5

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9995
Wt. Comp. Soil + Mold (gm.)	598.6	619.3
Wt. of Mold (gm.)	195.6	195.6
Specific Gravity (Assumed)	2.70	2.70
Container No.	10	10
Wet Wt. of Soil + Cont. (gm.)	578.8	619.3
Dry Wt. of Soil + Cont. (gm.)	551.5	366.4
Wt. of Container (gm.)	278.8	195.6
Moisture Content (%)	10.0	15.7
Wet Density (pcf)	121.6	127.9
Dry Density (pcf)	110.5	110.6
Void Ratio	0.525	0.525
Total Porosity	0.344	0.344
Pore Volume (cc)	71.3	71.2
Degree of Saturation (%) [S meas]	**51.4**	**80.5**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
10/20/20	14:00	1.0	0	0.5000
10/20/20	14:10	1.0	10	0.5000
	Add Distilled Water to the Specimen			
10/21/20	6:00	1.0	950	0.4995
10/21/20	7:00	1.0	1010	0.4995

Expansion Index (EI meas) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-0.5
Expansion Index (Report) = Nearest Whole Number or Zero (0) if Initial Height is > than Final Heigh	**0**

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EXPANSION INDEX of SOILS

ASTM D 4829

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Project Name:	SoCal Arena/Riverside City Arena	Tested By:	M. Vinet	Date:	10/20/20
Project No. :	12915.001	Checked By:	M. Vinet	Date:	10/21/20
Boring No.:	P-6	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), Olive Brown.				

Dry Wt. of Soil + Cont. (gm.)	2522.3
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	2522.3
Weight Soil Retained on #4 Sieve	106.9
Percent Passing # 4	95.8

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9994
Wt. Comp. Soil + Mold (gm.)	589.3	610.5
Wt. of Mold (gm.)	180.8	180.8
Specific Gravity (Assumed)	2.70	2.70
Container No.	11	11
Wet Wt. of Soil + Cont. (gm.)	578.8	610.5
Dry Wt. of Soil + Cont. (gm.)	554.0	374.8
Wt. of Container (gm.)	278.8	180.8
Moisture Content (%)	9.0	14.7
Wet Density (pcf)	123.2	129.7
Dry Density (pcf)	113.0	113.1
Void Ratio	0.491	0.490
Total Porosity	0.329	0.329
Pore Volume (cc)	68.2	68.1
Degree of Saturation (%) [S meas]	**49.5**	**80.7**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
10/20/20	14:20	1.0	0	0.5000
10/20/20	14:30	1.0	10	0.5000
	Add Distilled Water to the Specimen			
10/21/20	6:00	1.0	930	0.4994
10/21/20	7:00	1.0	990	0.4994

Expansion Index (EI meas) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	-0.6
Expansion Index (Report) = Nearest Whole Number or Zero (0) if Initial Height is > than Final Heigh	**0**

Rev. 03-08

Boring No.	P-1	P-1	P-1	P-1	P-1	P-1	P-2	P-2
Sample No.	R-1	R-2	R-3	R-4	R-6	R-8	R-1	R-2
Depth (ft.)	5.0	10.0	15.0	20.0	30.0	40.0	5.0	10.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Silty Sand (SM)	Poorly Graded Sand (SP)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1178.7	1059.5	1017.6	1091.7	1102.7	1086.1	1003.9	977.5
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	266.4	266.4	222.0	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	6.00	6.00	5.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	346.5	267.0	278.9	260.9	329.9	324.4	353.3	308.4
Dry Wt. of Soil + Cont. (g)	333.0	261.2	267.3	254.9	320.0	316.8	340.0	299.1
Weight of Container (g)	36.0	50.4	33.9	49.8	39.2	50.6	38.5	50.5
Container No.	A-9	20	A-13	FF	A-19	HH	A-21	W
Wet Density	126.5	109.9	104.1	114.4	115.9	113.6	130.1	98.6
Moisture Content (%)	**4.5**	**2.8**	**5.0**	**2.9**	**3.5**	**2.9**	**4.4**	**3.7**
Dry Density (pcf)	**121.0**	**107.0**	**99.2**	**111.1**	**112.0**	**110.5**	**124.6**	**95.0**
Degree of Saturation (%)	31.2	12.9	19.2	15.3	18.8	14.7	33.7	13.0

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compnany LLC
Tested By: M. Vinet Date: 10/26/20

Boring No.	P-2	P-3	P-3	P-3	P-4	P-4	P-4	P-5
Sample No.	R-3	R-1	R-2	R-3	R-1	R-2	R3	R-1
Depth (ft.)	15.0	5.0	10.0	15.0	5.0	10.0	15.0	5.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1073.1	1098.1	1087.3	1046.6	1005.5	1000.1	1049.2	1030.8
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	298.0	353.0	338.1	297.3	308.5	314.0	417.7	347.4
Dry Wt. of Soil + Cont. (g)	291.6	343.2	329.0	291.4	300.7	304.8	413.1	333.8
Weight of Container (g)	39.3	50.5	40.0	51.5	38.2	50.8	39.7	51.0
Container No.	75	29	A-17	R-3	A-24	27	Z-87	26
Wet Density	111.8	115.3	113.8	108.1	102.4	101.7	108.5	106.0
Moisture Content (%)	**2.5**	**3.3**	**3.1**	**2.5**	**3.0**	**3.6**	**1.2**	**4.8**
Dry Density (pcf)	**109.1**	**111.5**	**110.3**	**105.5**	**99.5**	**98.1**	**107.2**	**101.1**
Degree of Saturation (%)	12.6	17.7	16.1	11.1	11.6	13.6	5.8	19.5

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Companny LLC
Tested By: M. Vinet Date: 10/26/20

Boring No.	P-5	P-5	P-6	P-6	P-6			
Sample No.	R-2	R-3	R-1	R-2	R-3			
Depth (ft.)	10.0	15.0	5.0	10.0	15.0			
Sample Type	Drive	Drive	Drive	Drive	Drive			
Soil Identification	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)			
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	994.3	956.3	1031.4	1027.1	1003.4			
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	266.4			
Average Length (in.)	6.00	6.00	6.00	6.00	6.00			
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415			
Wet. Wt. of Soil + Cont. (g)	280.0	338.4	302.0	232.5	298.3			
Dry Wt. of Soil + Cont. (g)	267.1	313.4	288.0	230.7	295.0			
Weight of Container (g)	39.2	50.6	37.0	49.1	49.9			
Container No.	A-11	E	A-12	8	T			
Wet Density	100.9	95.6	106.0	105.4	102.2			
Moisture Content (%)	**5.7**	**9.5**	**5.6**	**1.0**	**1.3**			
Dry Density (pcf)	**95.5**	**87.3**	**100.4**	**104.4**	**100.8**			
Degree of Saturation (%)	20.0	27.6	22.2	4.4	5.4			

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name:	SoCal Arena/Riverside City Arena/Geo
Project No.:	12915.001
Client Name:	SoCal Arena Compannny LLC
Tested By:	M. Vinet
Date:	10/26/20

Boring No.	LB-1	LB-1	LB-1	LB-1	LB-1	LB-1	LB-1	LB-2
Sample No.	R-2	R-10	R-12	R-14	R-16	R-18	R-20	R-1
Depth (ft.)	7.0	40.0	50.0	60.0	70.0	80.0	90.0	5.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1137.0	1036.9	1021.5	976.5	964.1	1031.3	705.8	1114.3
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	266.4	266.4	177.6	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	6.00	6.00	4.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	364.2	291.4	299.4	287.4	273.4	320.5	263.5	349.8
Dry Wt. of Soil + Cont. (g)	332.0	289.5	296.8	285.5	270.8	305.7	242.0	341.4
Weight of Container (g)	37.8	50.4	39.3	49.3	36.9	49.2	39.1	50.5
Container No.	A-24	27	A-2	Y	A-12	8	A-19	HH
Wet Density	120.7	106.8	104.7	98.4	96.7	106.0	109.8	117.5
Moisture Content (%)	**10.9**	**0.8**	**1.0**	**0.8**	**1.1**	**5.8**	**10.6**	**2.9**
Dry Density (pcf)	**108.8**	**106.0**	**103.6**	**97.6**	**95.6**	**100.2**	**99.3**	**114.2**
Degree of Saturation (%)	53.8	3.6	4.3	3.0	3.9	22.9	41.0	16.4

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compnany LLC
Tested By: M. Vinet Date: 10/20/20

Boring No.	LB-2	LB-2	LB-2	LB-2	LB-2	LB-2	LB-2	LB-2
Sample No.	R-2	R-3	R-4	R-5	R-7	R-9	R-11	R-13
Depth (ft.)	7.0	10.0	15.0	20.0	30.0	40.0	50.0	60.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1018.8	1036.9	1095.1	1078.9	1081.7	1012.6	1002.9	1041.8
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	291.2	360.7	455.4	450.5	430.5	262.5	385.3	308.7
Dry Wt. of Soil + Cont. (g)	286.5	354.7	451.6	446.6	426.1	260.0	382.0	305.1
Weight of Container (g)	38.0	50.3	33.9	49.6	37.8	49.7	38.3	50.2
Container No.	A-7	O	A-13	FF	A-1	9	A-27	F
Wet Density	104.3	106.8	114.9	112.6	113.0	103.4	102.1	107.5
Moisture Content (%)	**1.9**	**2.0**	**0.9**	**1.0**	**1.1**	**1.2**	**1.0**	**1.4**
Dry Density (pcf)	**102.4**	**104.7**	**113.8**	**111.5**	**111.7**	**102.2**	**101.1**	**106.0**
Degree of Saturation (%)	7.9	8.7	5.1	5.2	6.0	4.9	3.9	6.5

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compannу LLC
Tested By: M. Vinet Date: 10/20/20

Boring No.	LB-2	LB-2	LB-2	LB-3	LB-3	LB-3	LB-3	LB-3
Sample No.	R-15	R-17	R-19	R-1	R-2	R-3	R-4	R-5
Depth (ft.)	70.0	80.0	90.0	5.0	7.0	10.0	12.0	15.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Silty Sand (SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1103.7	1052.0	1008.2	1197.7	878.9	884.1	1045.2	928.8
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	222.0	222.0	266.4	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	5.00	5.00	6.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	307.5	318.4	280.2	393.1	235.6	318.8	314.1	275.4
Dry Wt. of Soil + Cont. (g)	303.3	313.8	262.0	385.4	226.6	310.0	300.2	264.3
Weight of Container (g)	39.1	49.9	39.0	49.9	38.0	50.1	38.0	49.6
Container No.	A-22	J	75	29	A-21	W	A-16	6
Wet Density	116.1	108.9	102.8	129.1	109.3	110.1	107.9	91.8
Moisture Content (%)	**1.6**	**1.7**	**8.2**	**2.3**	**4.8**	**3.4**	**5.3**	**5.2**
Dry Density (pcf)	**114.2**	**107.0**	**95.1**	**126.2**	**104.3**	**106.5**	**102.5**	**87.3**
Degree of Saturation (%)	9.0	8.2	28.5	18.5	20.9	15.7	22.2	15.0

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Companny LLC
Tested By: M. Vinet Date: 10/20/20

Boring No.	LB-3	LB-3	LB-3	LB-3	LB-3	LB-3	LB-3	LB-4
Sample No.	R-6	R-7	R-8	R-9	R-10	R-11	R-12	R-4
Depth (ft.)	25.0	35.0	45.0	55.0	65.0	75.0	85.0	12.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Silty Sand (SM)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1001.8	1019.1	1073.5	1025.8	1038.4	1044.8	1052.5	1077.7
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	222.0	222.0	266.4	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	5.00	5.00	6.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	429.1	280.9	491.6	305.7	432.0	377.1	305.2	325.6
Dry Wt. of Soil + Cont. (g)	405.2	275.0	489.2	304.2	430.0	374.6	301.1	318.6
Weight of Container (g)	39.4	50.7	36.7	49.6	38.8	50.6	39.2	50.5
Container No.	77	BB	A-29	VV	D	JJ	A-11	E
Wet Density	101.9	104.3	111.9	105.3	135.8	136.9	109.0	112.5
Moisture Content (%)	**6.5**	**2.6**	**0.5**	**0.6**	**0.5**	**0.8**	**1.6**	**2.6**
Dry Density (pcf)	**95.7**	**101.7**	**111.3**	**104.6**	**135.1**	**135.8**	**107.3**	**109.6**
Degree of Saturation (%)	23.2	10.8	2.8	2.6	5.6	8.6	7.4	13.1

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compannny LLC
Tested By: M. Vinet Date: 10/20/20

Boring No.	LB-4	LB-4	LB-4	LB-4	LB-4	LB-4	LB-5	LB-5
Sample No.	R-10	R-12	R-14	R-16	R-18	R-20	R-1	R-2
Depth (ft.)	40.0	50.0	60.0	70.0	80.0	90.0	5.0	7.0
Sample Type	Drive	Drive	Drive	Drive	Drive	Drive	Drive	Drive
Soil Identification	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Silty Sand (SM)	Poorly Graded Sand with Silt (SP-SM)
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1039.3	1042.4	1060.6	1091.8	1042.6	1096.5	1171.2	1086.3
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4	222.0	222.0	266.4	266.4
Average Length (in.)	6.00	6.00	6.00	6.00	5.00	5.00	6.00	6.00
Average Diameter (in.)	2.415	2.415	2.415	2.415	2.415	2.415	2.415	2.415
Wet. Wt. of Soil + Cont. (g)	320.4	347.3	288.0	372.6	364.1	329.1	426.4	343.1
Dry Wt. of Soil + Cont. (g)	313.1	342.3	276.5	370.1	356.0	304.7	400.0	328.4
Weight of Container (g)	38.9	51.3	35.4	50.3	38.9	49.9	37.0	50.4
Container No.	A-10	R32	A-9	20	101	Q	A-18	R
Wet Density	107.1	107.6	110.1	114.4	136.5	145.5	125.4	113.6
Moisture Content (%)	**2.7**	**1.7**	**4.8**	**0.8**	**2.6**	**9.6**	**7.3**	**5.3**
Dry Density (pcf)	**104.4**	**105.7**	**105.1**	**113.5**	**133.1**	**132.7**	**116.9**	**107.9**
Degree of Saturation (%)	11.7	7.8	21.3	4.4	25.9	95.8	44.4	25.4

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compannny LLC
Tested By: M. Vinet Date: 10/20/20

Boring No.	LB-5	LB-5	LB-5	LB-6				
Sample No.	R-3	R-4	R-5	R-1				
Depth (ft.)	10.0	12.0	15.0	20.0				
Sample Type	Drive	Drive	Drive	Drive				
Soil Identification	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)				
Pocket Penetrometer (tons/ft^2)								
Weight Soil + Rings / Tube (g)	1079.1	1063.1	1052.4	1098.3				
Weight of Rings / Tube (g)	266.4	266.4	266.4	266.4				
Average Length (in.)	6.00	6.00	6.00	6.00				
Average Diameter (in.)	2.415	2.415	2.415	2.415				
Wet. Wt. of Soil + Cont. (g)	351.3	348.4	336.3	387.3				
Dry Wt. of Soil + Cont. (g)	316.0	342.6	315.5	378.0				
Weight of Container (g)	37.2	50.1	38.7	50.2				
Container No.	A-30	K	A-14	AA				
Wet Density	112.6	110.4	108.9	115.3				
Moisture Content (%)	**12.7**	**2.0**	**7.5**	**2.8**				
Dry Density (pcf)	**100.0**	**108.3**	**101.3**	**112.1**				
Degree of Saturation (%)	49.8	9.6	30.6	15.2				

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MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: SoCal Arena/Riverside City Arena/Geo
Project No.: 12915.001
Client Name: SoCal Arena Compann LLC
Tested By: M. Vinet Date: 10/20/20

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MOISTURE CONTENT
ASTM D 2216

Project Name: **SoCal Arena/Riverside City Arena/Geo**
Project No.: **12915.001**

Tested By: M. Vinet
Date: 10/26/20
Checked By: M. Vinet
Date: 10/27/20

Boring No.	P-1	P-1	P-1		
Sample No.	S-5	S-7	S-9		
Depth (ft)	25	35	45		
Sample Type	SPT	SPT	SPT		
Sample Description	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)		
Wt. wet soil + container (g)	370.5	288.5	622.5		
Wt. dry soil + container (g)	332.1	280.2	613.7		
Weight of container (g)	39.2	50.2	275.9		
Moisture Content (%)	**13.1**	**3.6**	**2.6**		

Boring No.					
Sample No.					
Depth (ft)					
Sample Type					
Sample Description					
Wt. wet soil + container (g)					
Wt. dry soil + container (g)					
Weight of container (g)					
Moisture Content (%)					

MOISTURE CONTENT

ASTM D 2216

Leighton

Project Name: **SoCal Arena/Riverside City Arena/Geo**
Project No.: **12915.001**

Tested By: M. Vinet
Date: 10/20/20
Checked By: M. Vinet
Date: 10/27/20

Boring No.	LB-1	LB-1	LB-1	LB-1	LB-1
Sample No.	S-7	S-9	S-11	S-13	S-17
Depth (ft)	25	35	45	55	75
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)
Wt. wet soil + container (g)	440.3	281.7	385.4	346.2	311.3
Wt. dry soil + container (g)	435.8	278.5	380.3	342.4	297.5
Weight of container (g)	39.1	50.4	39.4	50.8	38.8
Moisture Content (%)	**1.1**	**1.4**	**1.5**	**1.3**	**5.3**

Boring No.	LB-1	LB-2	LB-2	LB-2	LB-2
Sample No.	S-19	S-6	S-8	S-10	S-12
Depth (ft)	85	25	35	45	55
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)
Wt. wet soil + container (g)	272.1	410.6	335.7	409.9	273.5
Wt. dry soil + container (g)	267.3	405.0	333.3	406.2	265.3
Weight of container (g)	50.3	39.2	49.8	38.4	50.4
Moisture Content (%)	**2.2**	**1.5**	**0.8**	**1.0**	**3.8**

MOISTURE CONTENT
ASTM D 2216

Leighton

Project Name: **SoCal Arena/Riverside City Arena/Geo**
Project No.: **12915.001**

Tested By: M. Vinet
Date: 10/20/20
Checked By: M. Vinet
Date: 10/27/20

Boring No.	LB-2	LB-2	LB-2	LB-3	LB-3
Sample No.	S-14	S-16	S-18	S-1	S-2
Depth (ft)	65	75	85	20	30
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Silt (ML)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)
Wt. wet soil + container (g)	325.0	338.4	318.9	437.3	362.7
Wt. dry soil + container (g)	319.8	331.2	267.7	426.4	357.0
Weight of container (g)	37.6	49.9	50.2	35.7	50.4
Moisture Content (%)	**1.8**	**2.6**	**23.5**	**2.8**	**1.9**

Boring No.	LB-3	LB-3	LB-3	LB-3	LB-3
Sample No.	S-3	S-4	S-5	S-6	S-7
Depth (ft)	40	50	60	70	80
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)
Wt. wet soil + container (g)	376.9	343.0	410.4	360.7	458.0
Wt. dry soil + container (g)	372.8	339.8	402.5	356.9	429.2
Weight of container (g)	40.0	50.6	38.1	50.6	39.3
Moisture Content (%)	**1.2**	**1.1**	**2.2**	**1.2**	**7.4**

MOISTURE CONTENT
ASTM D 2216

Leighton

Project Name: **SoCal Arena/Riverside City Arena/Geo**
Project No.: **12915.001**

Tested By: M. Vinet
Date: 10/20/20
Checked By: M. Vinet
Date: 10/27/20

Boring No.	LB-3	LB-4	LB-4	LB-4	LB-4
Sample No.	S-8	S-7	S-9	S-11	S-13
Depth (ft)	90	25	35	45	55
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Silty Sand (SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)
Wt. wet soil + container (g)	260.7	394.1	259.9	360.2	250.5
Wt. dry soil + container (g)	252.3	351.7	248.6	352.3	241.2
Weight of container (g)	50.5	34.7	50.0	39.6	50.5
Moisture Content (%)	**4.2**	**13.4**	**5.7**	**2.5**	**4.9**

Boring No.	LB-4	LB-4	LB-4	LB-6	LB-6
Sample No.	S-15	S-17	S-19	S-1	S-2
Depth (ft)	65	75	85	5	7
Sample Type	SPT	SPT	SPT	SPT	SPT
Sample Description	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand (SP)	Poorly Graded Sand with Silt (SP-SM)	Poorly Graded Sand with Silt (SP-SM)
Wt. wet soil + container (g)	309.9	356.5	307.8	348.2	336.1
Wt. dry soil + container (g)	305.3	350.3	302.6	340.0	314.0
Weight of container (g)	51.1	50.7	50.6	51.0	50.4
Moisture Content (%)	**1.8**	**2.1**	**2.1**	**2.8**	**8.4**

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MOISTURE CONTENT

ASTM D 2216

Project Name: **SoCal Arena/Riverside City Arena/Geo**
Project No.: **12915.001**

Tested By: M. Vinet
Date: 10/20/20
Checked By: M. Vinet
Date: 10/27/20

Boring No.	LB-6	LB-6	LB-6		
Sample No.	S-3	S-4	S-5		
Depth (ft)	10	12	15		
Sample Type	SPT	SPT	SPT		
Sample Description	Poorly Graded Sand with Silt (SP-SM)	Silty Sand (SM)	Poorly Graded Sand with Silt (SP-SM)		
Wt. wet soil + container (g)	315.2	306.4	277.0		
Wt. dry soil + container (g)	307.5	287.5	268.6		
Weight of container (g)	50.4	50.4	51.0		
Moisture Content (%)	**3.0**	**8.0**	**3.9**		

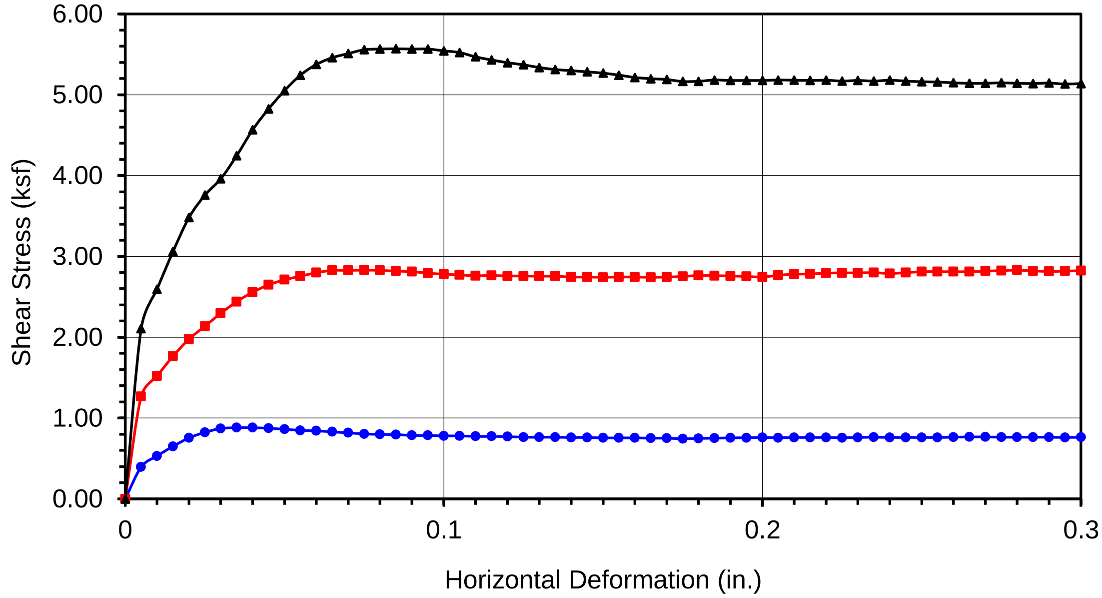
Boring No.					
Sample No.					
Depth (ft)					
Sample Type					
Sample Description					
Wt. wet soil + container (g)					
Wt. dry soil + container (g)					
Weight of container (g)					
Moisture Content (%)					

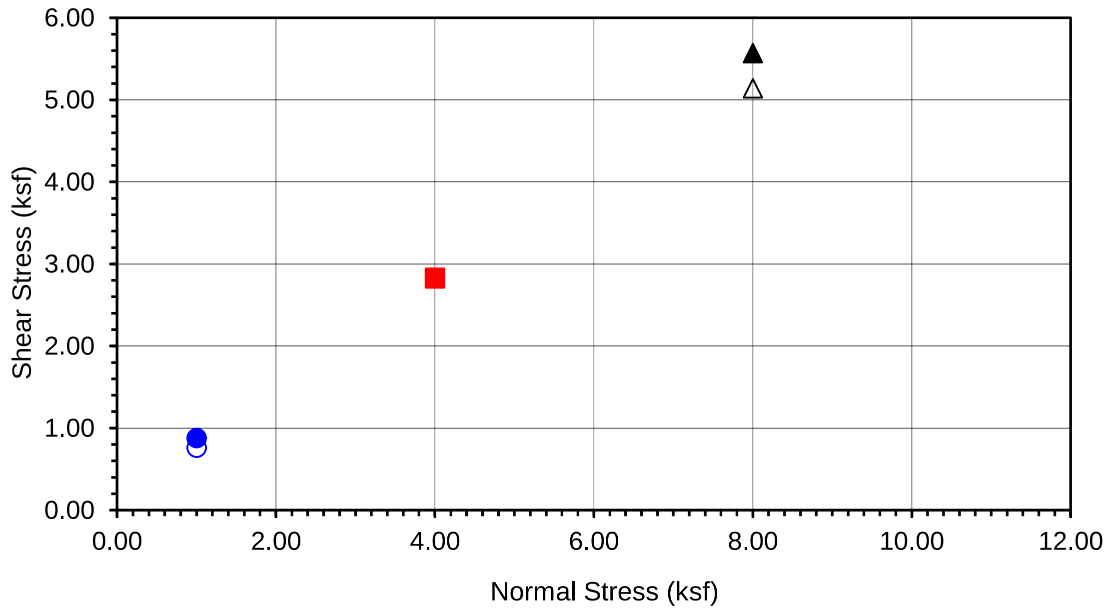
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/28/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/28/20
Boring No.:	LB-1	Sample Type:	90% Remold		
Sample No.:	B-1	Depth (ft.):	0 - 5.0		
Soil Identification:	Silty Sand (SM), Olive Brown.				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	194.60	194.31	194.61
Weight of Ring(gm):	45.80	45.80	45.80
Before Shearing			
Weight of Wet Sample+Cont.(gm):	122.88	122.88	122.88
Weight of Dry Sample+Cont.(gm):	118.51	118.51	118.51
Weight of Container(gm):	50.02	50.02	50.02
Vertical Rdg.(in): Initial	0.0000	0.2500	0.2500
Vertical Rdg.(in): Final	-0.0053	0.2662	0.2722
After Shearing			
Weight of Wet Sample+Cont.(gm):	210.61	208.03	208.40
Weight of Dry Sample+Cont.(gm):	188.35	187.55	187.44
Weight of Container(gm):	50.56	50.40	50.10
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type: 90% Remold	
Soil Identification: Silty Sand (SM), Olive Brown.	

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.880	■ 2.830	▲ 5.569
Shear Stress @ End of Test (ksf)	○ 0.763	□ 2.824	△ 5.139
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	6.38	6.38	6.38
Dry Density (pcf)	116.3	116.1	116.3
Saturation (%)	38.4	38.1	38.4
Soil Height Before Shearing (in.)	0.9947	0.9838	0.9778
Final Moisture Content (%)	16.2	14.9	15.3

Leighton

DIRECT SHEAR TEST RESULTS

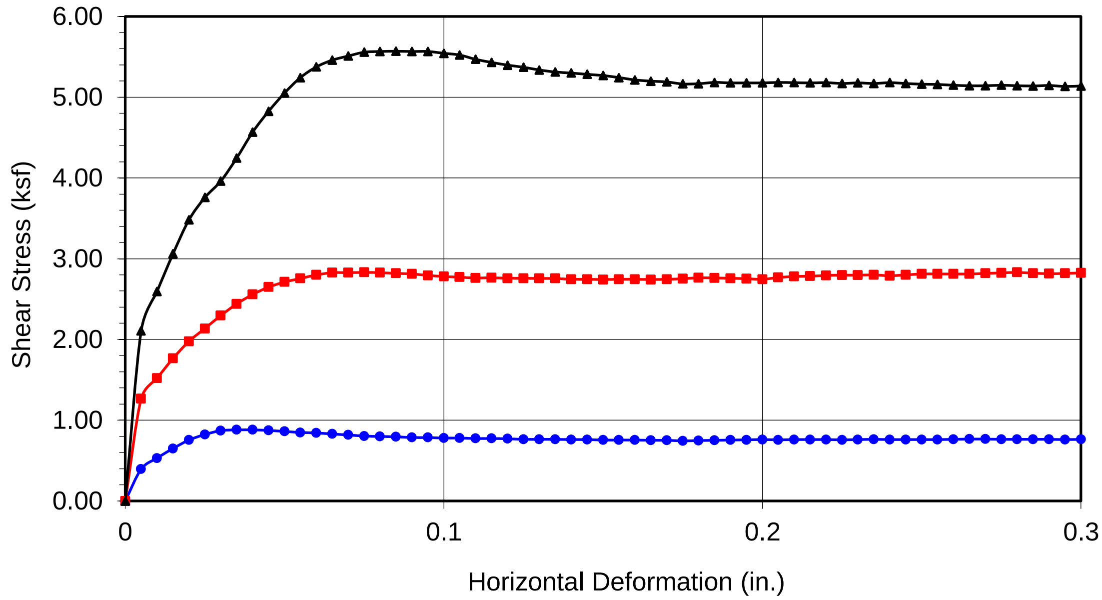
Consolidated Drained - ASTM D 3080

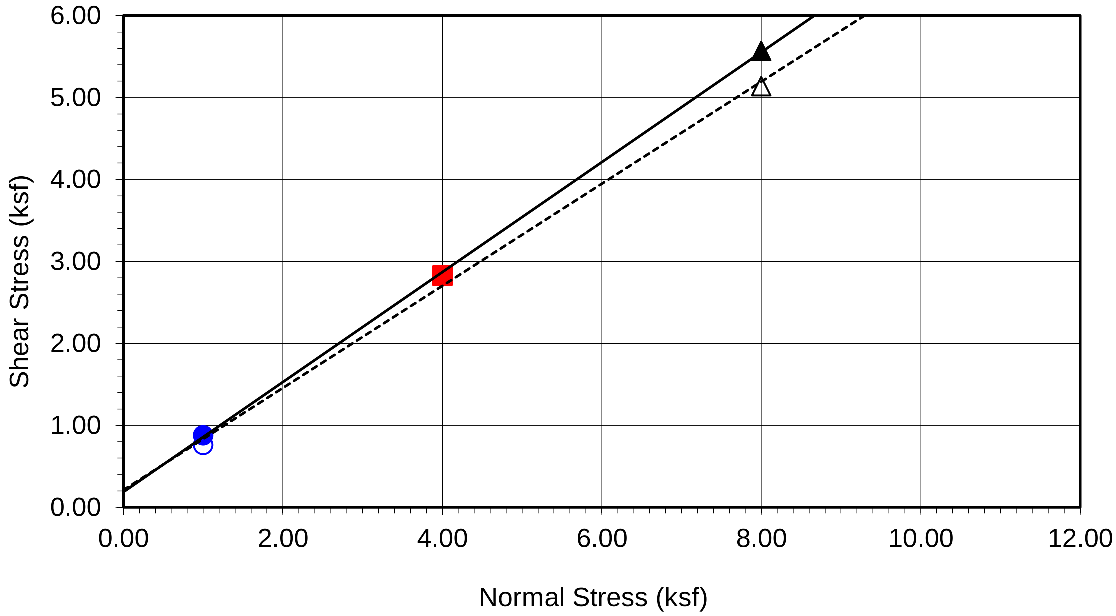
Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Remold Shear; LB-1, B-1 (10-09-20)





Boring No.	**LB-1**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type:	90% Remold

Soil Identification:
Silty Sand (SM), Olive Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	187	34
Ultimate	211	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.880	■ 2.830	▲ 5.569
Shear Stress @ End of Test (ksf)	○ 0.763	□ 2.824	△ 5.139
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	6.38	6.38	6.38
Dry Density (pcf)	116.3	116.1	116.3
Saturation (%)	38.4	38.1	38.4
Soil Height Before Shearing (in.)	0.9947	0.9838	0.9778
Final Moisture Content (%)	16.2	14.9	15.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

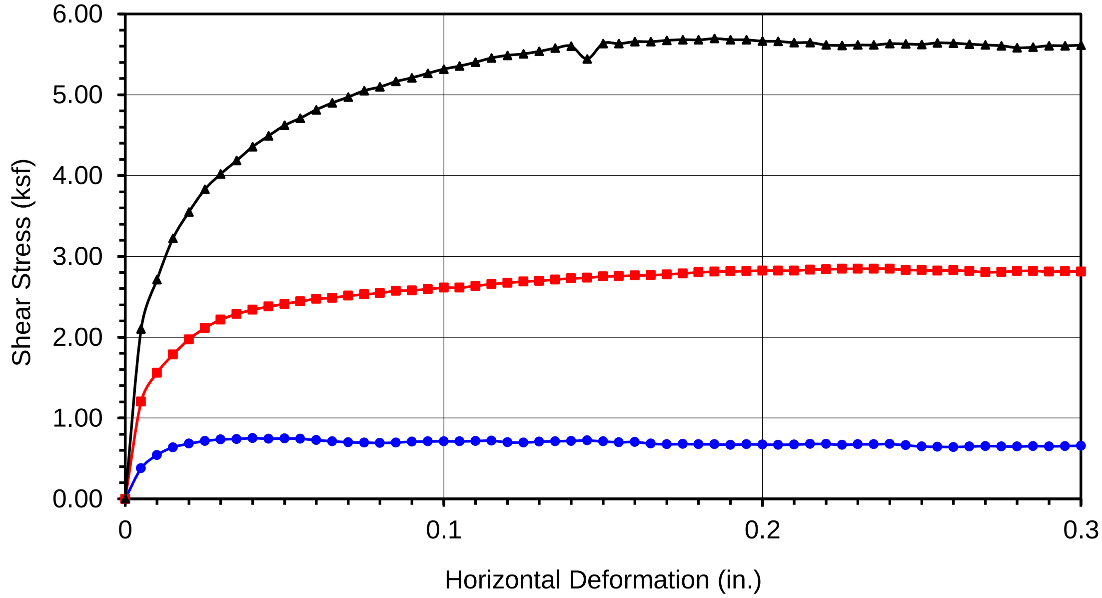
DIRECT SHEAR TEST

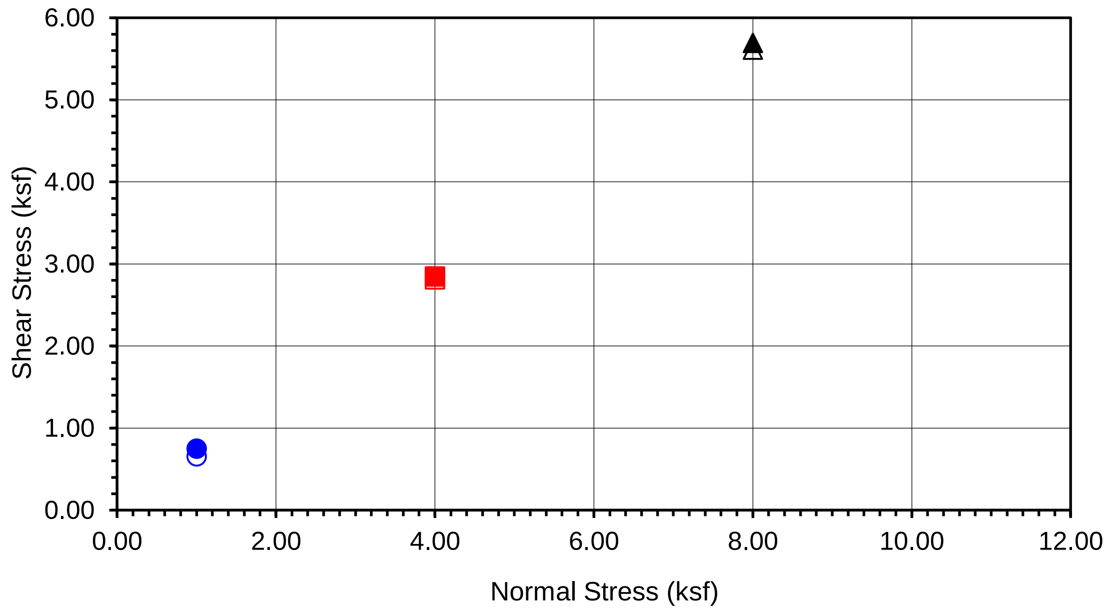
Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/28/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/28/20
Boring No.:	LB-4	Sample Type:	90% Remold		
Sample No.:	B-1	Depth (ft.):	0 - 5.0		

Soil Identification: Silty Sand (SM), Olive Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	199.71	197.35	199.60
Weight of Ring(gm):	45.40	45.40	45.40
Before Shearing			
Weight of Wet Sample+Cont.(gm):	154.20	154.20	154.20
Weight of Dry Sample+Cont.(gm):	140.78	140.78	140.78
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2500	0.2500
Vertical Rdg.(in): Final	-0.0069	0.2660	0.2826
After Shearing			
Weight of Wet Sample+Cont.(gm):	211.14	210.20	213.61
Weight of Dry Sample+Cont.(gm):	191.16	190.76	194.50
Weight of Container(gm):	50.38	50.78	51.96
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-4**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**

Sample Type:

90% Remold

Soil Identification:
Silty Sand (SM), Olive Brown.

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.751	■ 2.849	▲ 5.695
Shear Stress @ End of Test (ksf)	○ 0.657	□ 2.811	△ 5.613
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.53	9.53	9.53
Dry Density (pcf)	117.2	115.4	117.1
Saturation (%)	58.7	55.8	58.5
Soil Height Before Shearing (in.)	0.9931	0.9840	0.9674
Final Moisture Content (%)	14.2	13.9	13.4

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DIRECT SHEAR TEST RESULTS

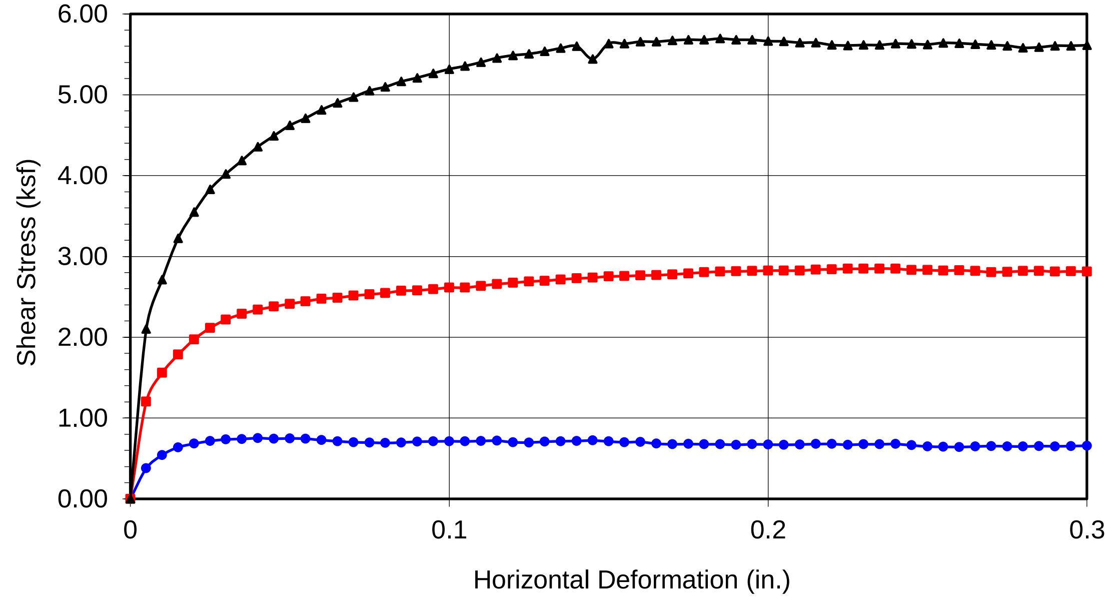
Consolidated Drained - ASTM D 3080

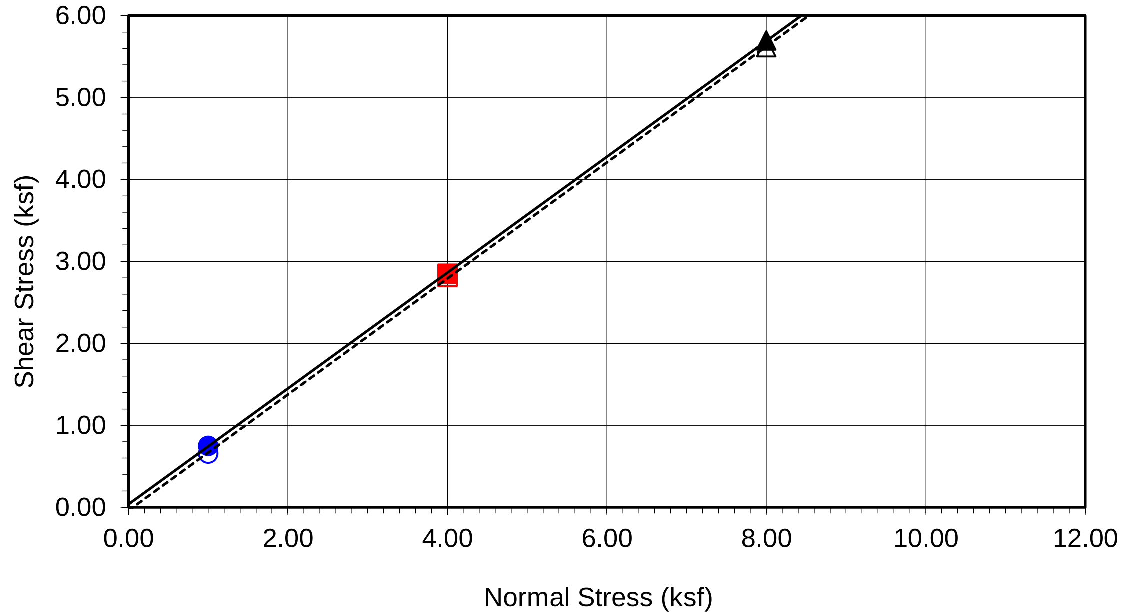
Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Remold Shear; LB-4, B-1 (10-09-20)





Boring No.	**LB-4**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type:	90% Remold

Soil Identification:
Silty Sand (SM), Olive Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	37	35
Ultimate	-39	35

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.751	■ 2.849	▲ 5.695
Shear Stress @ End of Test (ksf)	○ 0.657	□ 2.811	△ 5.613
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.53	9.53	9.53
Dry Density (pcf)	117.2	115.4	117.1
Saturation (%)	58.7	55.8	58.5
Soil Height Before Shearing (in.)	0.9931	0.9840	0.9674
Final Moisture Content (%)	14.2	13.9	13.4

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

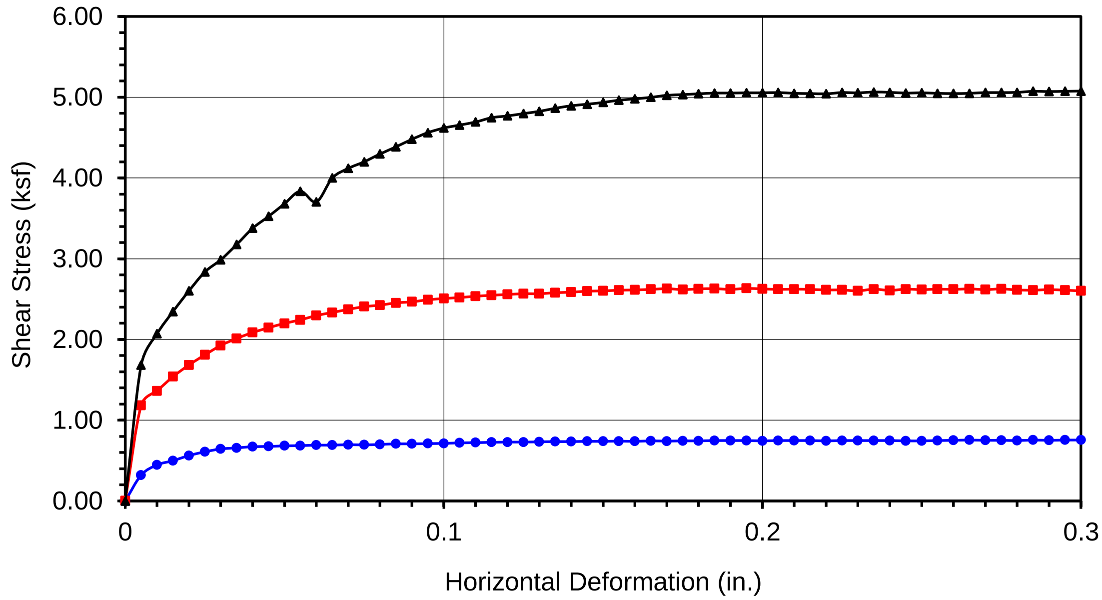
Leighton

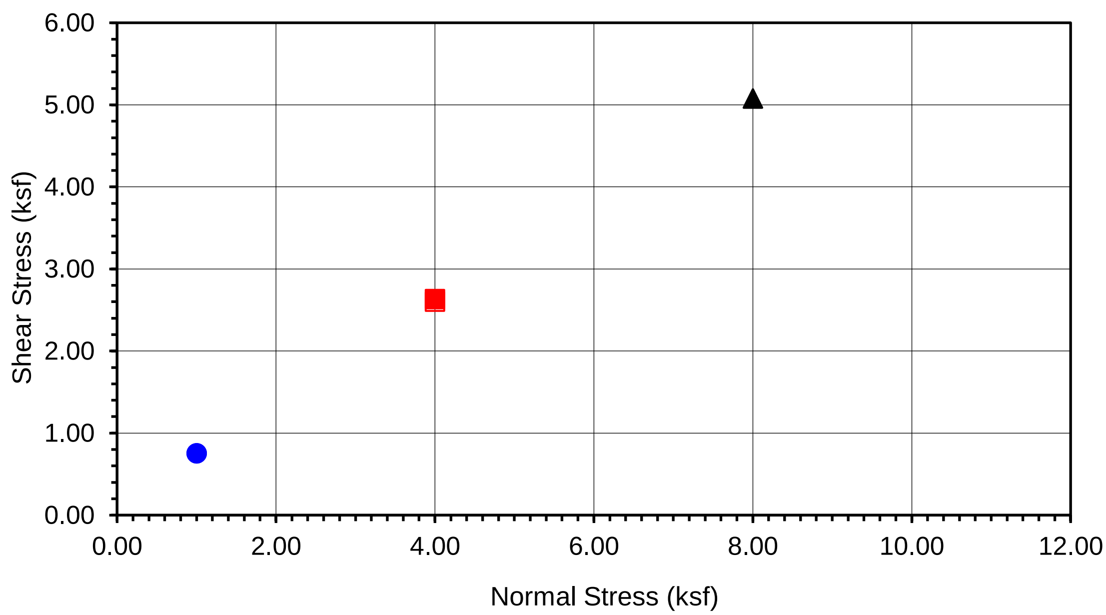
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name: SoCal Arena/Riverside City Arena/Geo   Tested By: M. Vinet   Date: 10/29/20
Project No.: 12915.001   Checked By: M. Vinet   Date: 10/29/20
Boring No.: P-1   Sample Type: 90% Remold
Sample No.: B-1   Depth (ft.): 0 - 5.0
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Olive Brown.

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	186.95	186.93	186.94
Weight of Ring(gm):	45.40	45.40	45.40
Before Shearing			
Weight of Wet Sample+Cont.(gm):	141.55	141.55	141.55
Weight of Dry Sample+Cont.(gm):	128.59	128.59	128.59
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2500	0.2500
Vertical Rdg.(in): Final	-0.0048	0.2638	0.2801
After Shearing			
Weight of Wet Sample+Cont.(gm):	201.30	200.83	202.28
Weight of Dry Sample+Cont.(gm):	179.00	179.96	180.64
Weight of Container(gm):	50.41	49.98	50.66
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**P-1**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**

Sample Type:

90% Remold

Soil Identification:
Poorly Graded Sand with Silt (SP-SM), Olive Brown.

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.754	■ 2.632	▲ 5.076
Shear Stress @ End of Test (ksf)	○ 0.754	□ 2.601	△ 5.076
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	10.08	10.08	10.08
Dry Density (pcf)	106.9	106.9	106.9
Saturation (%)	47.2	47.2	47.2
Soil Height Before Shearing (in.)	0.9952	0.9862	0.9699
Final Moisture Content (%)	17.3	16.1	16.6

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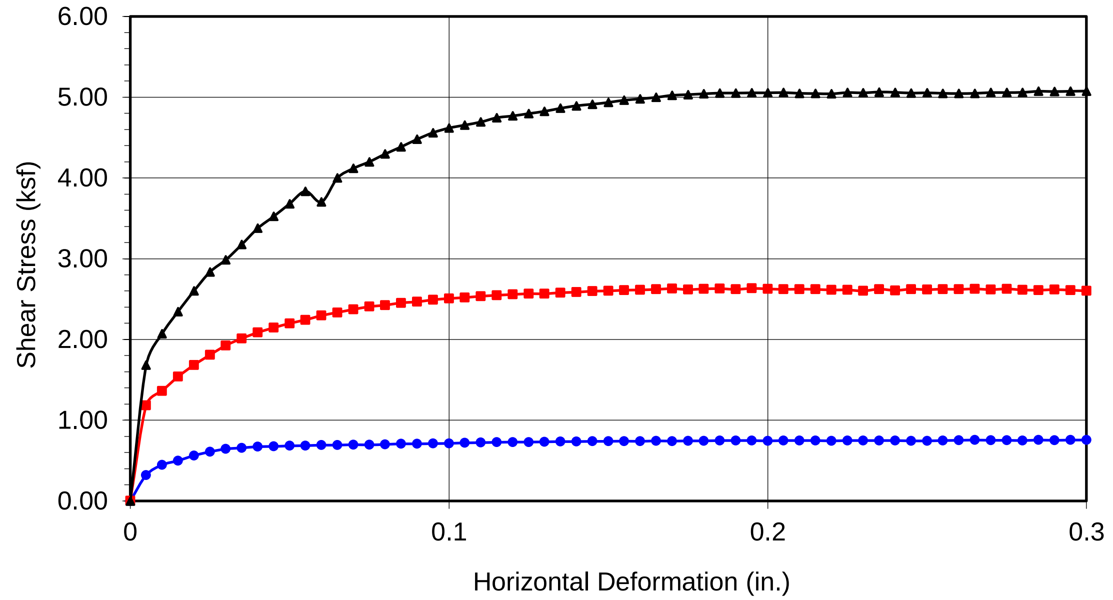
DIRECT SHEAR TEST RESULTS

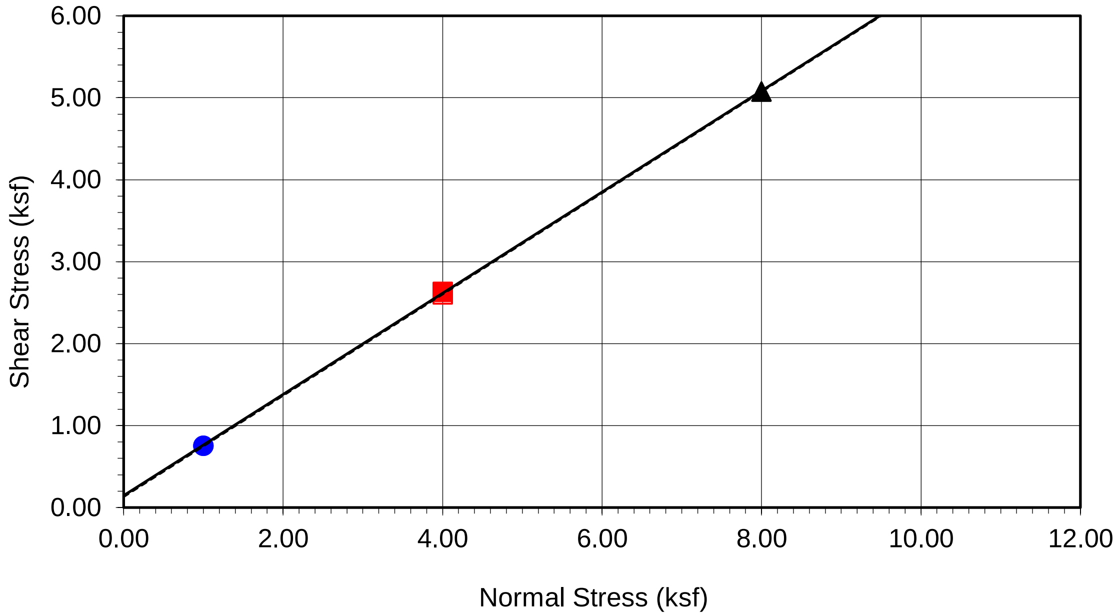
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20





Boring No.	**P-1**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type:	90% Remold

Soil Identification:
Poorly Graded Sand with Silt (SP-SM), Olive Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	147	32
Ultimate	135	32

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.754	■ 2.632	▲ 5.076
Shear Stress @ End of Test (ksf)	○ 0.754	□ 2.601	△ 5.076
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	10.08	10.08	10.08
Dry Density (pcf)	106.9	106.9	106.9
Saturation (%)	47.2	47.2	47.2
Soil Height Before Shearing (in.)	0.9952	0.9862	0.9699
Final Moisture Content (%)	17.3	16.1	16.6

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DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

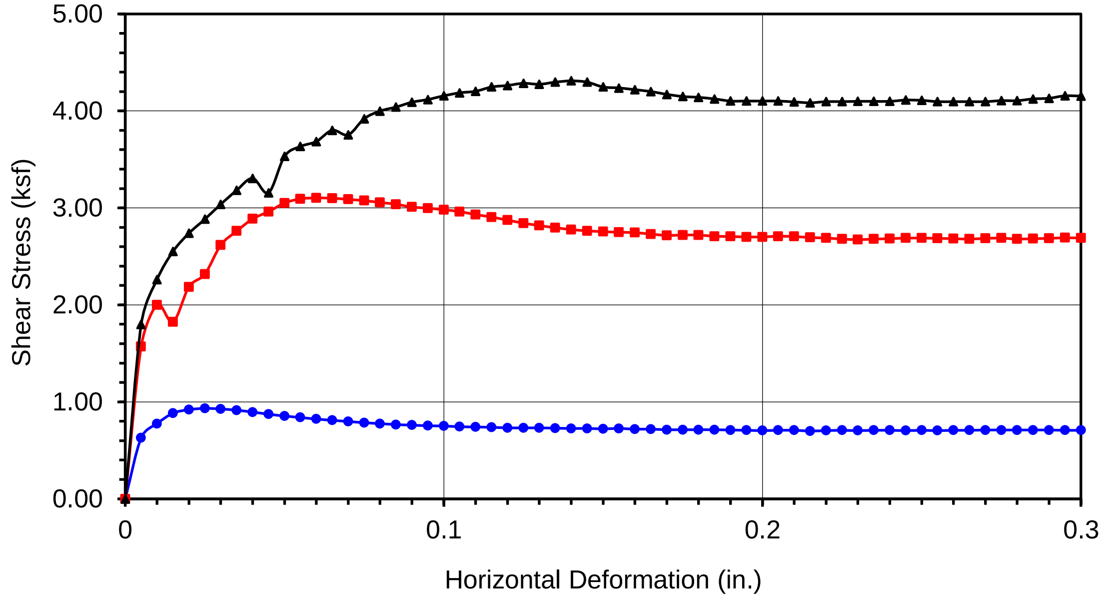
10-20

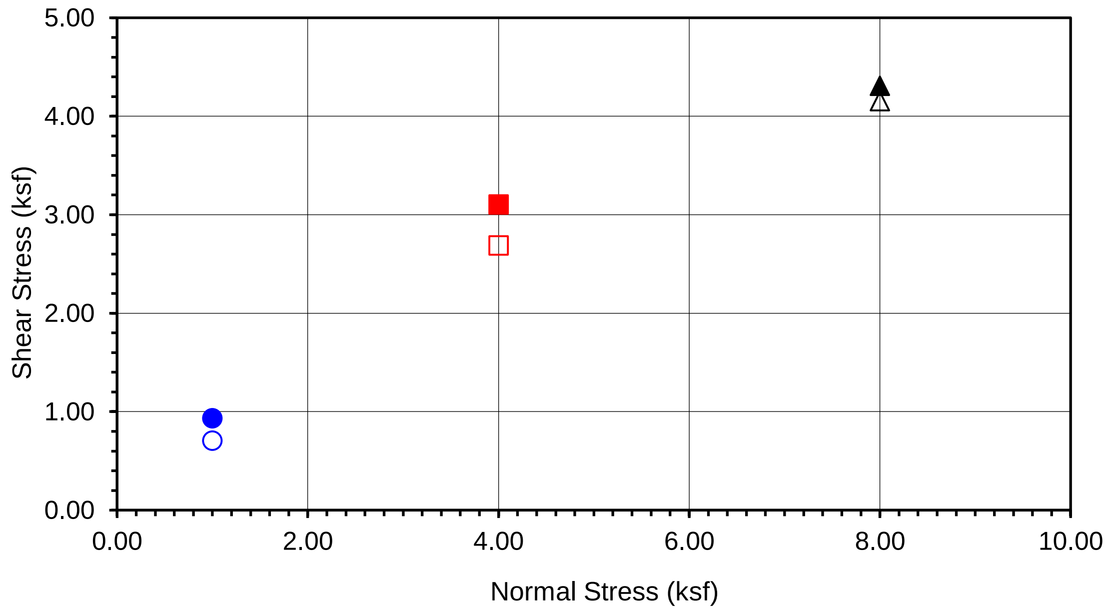
DIRECT SHEAR TEST

Consolidated Drained - ASTM D 3080

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	M. Vinet	Date:	10/29/20
Project No.:	12915.001	Checked By:	M. Vinet	Date:	10/29/20
Boring No.:	P-4	Sample Type:	90% Remold		
Sample No.:	B-1	Depth (ft.):	0 - 5.0		
Soil Identification:	Silty Sand (SM), Olive Brown.				

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	199.44	199.94	199.40
Weight of Ring(gm):	45.53	45.53	45.53
Before Shearing			
Weight of Wet Sample+Cont.(gm):	153.91	153.91	153.91
Weight of Dry Sample+Cont.(gm):	140.59	140.59	140.59
Weight of Container(gm):	0.00	0.00	0.00
Vertical Rdg.(in): Initial	0.0000	0.2500	0.2500
Vertical Rdg.(in): Final	-0.0121	0.2663	0.2811
After Shearing			
Weight of Wet Sample+Cont.(gm):	172.73	213.65	212.96
Weight of Dry Sample+Cont.(gm):	156.03	191.34	190.68
Weight of Container(gm):	50.21	50.75	50.58
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**P-4**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**

Sample Type:

90% Remold

Soil Identification:

Silty Sand (SM), Olive Brown.

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.933	■ 3.103	▲ 4.310
Shear Stress @ End of Test (ksf)	○ 0.707	□ 2.689	△ 4.153
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.47	9.47	9.47
Dry Density (pcf)	116.9	117.3	116.9
Saturation (%)	57.9	58.5	57.9
Soil Height Before Shearing (in.)	0.9879	0.9837	0.9689
Final Moisture Content (%)	15.8	15.9	15.9

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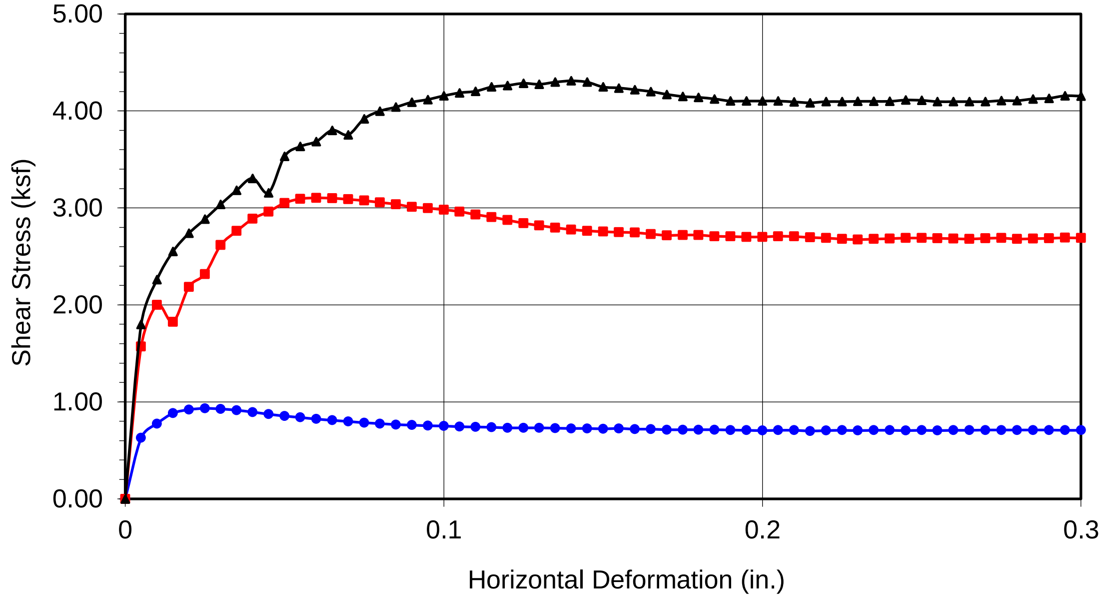
DIRECT SHEAR TEST RESULTS

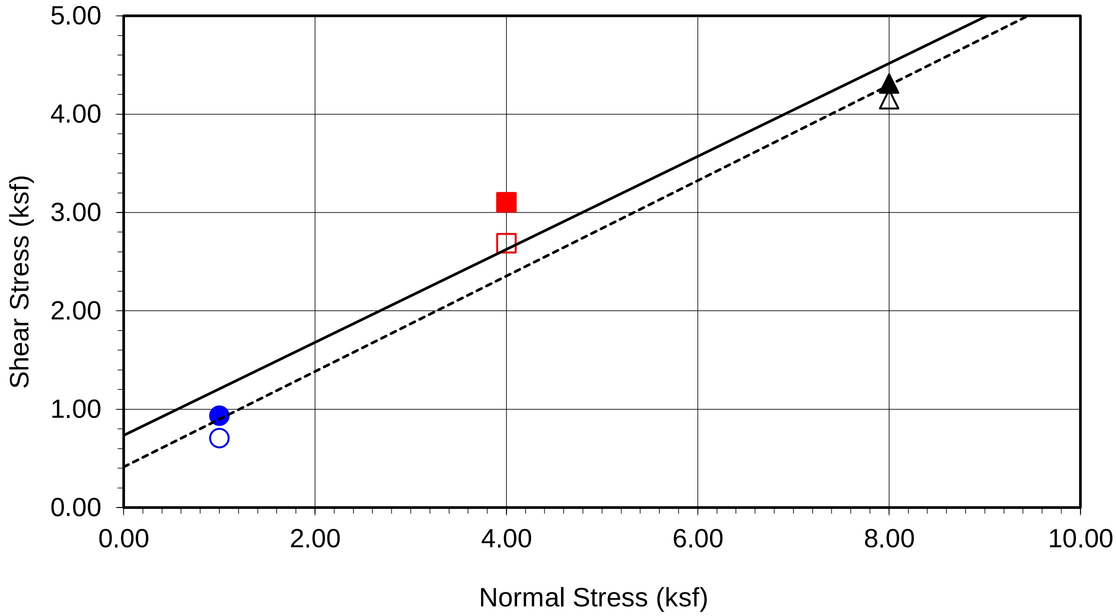
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20





Boring No.	**P-4**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type:	90% Remold

Soil Identification:
Silty Sand (SM), Olive Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	734	25
Ultimate	413	26

Normal Stress (kip/ft²)	1.000	4.000	8.000
Peak Shear Stress (kip/ft²)	● 0.933	■ 3.103	▲ 4.310
Shear Stress @ End of Test (ksf)	○ 0.707	□ 2.689	△ 4.153
Deformation Rate (in./min.)	0.0050	0.0050	0.0050
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.47	9.47	9.47
Dry Density (pcf)	116.9	117.3	116.9
Saturation (%)	57.9	58.5	57.9
Soil Height Before Shearing (in.)	0.9879	0.9837	0.9689
Final Moisture Content (%)	15.8	15.9	15.9

Leighton

DIRECT SHEAR TEST RESULTS
Consolidated Drained - ASTM D 3080

Project No.: 12915.001

SoCal Arena/Riverside City Arena/Geo

10-20

Remold Shear; P-4, B-1 (10-09-20)

R-VALUE TEST RESULTS
ASTM D 2844

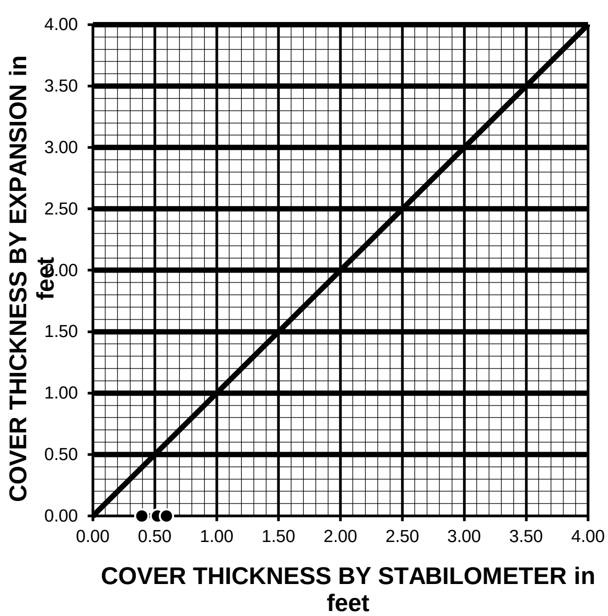
Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Date:	10/23/20
Project Number:	12915.001	Technician:	FLM/MRV
Boring Number:	LB-1	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Silty Sand (SM), Olive Brown.		

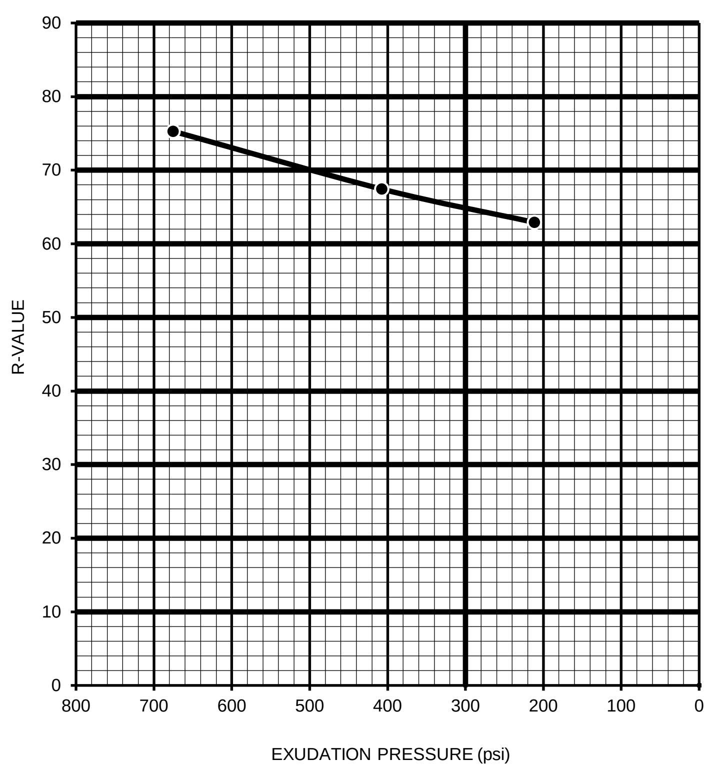
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	7.2	8.2	9.2
HEIGHT OF SAMPLE, Inches	2.50	2.54	2.55
DRY DENSITY, pcf	116.6	116.0	114.9
COMPACTOR AIR PRESSURE, psi	350	350	350
EXUDATION PRESSURE, psi	675	407	212
EXPANSION, Inches x 10exp-4	0	0	0
STABILITY Ph 2,000 lbs (160 psi)	25	32	37
TURNS DISPLACEMENT	4.43	4.83	4.90
R-VALUE UNCORRECTED	75	67	63
R-VALUE CORRECTED	75	67	63

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.40	0.52	0.59
EXPANSION PRESSURE THICKNESS, ft.	0.00	0.00	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	65
EQUILIBRIUM R-VALUE:	65

R-VALUE TEST RESULTS
ASTM D 2844

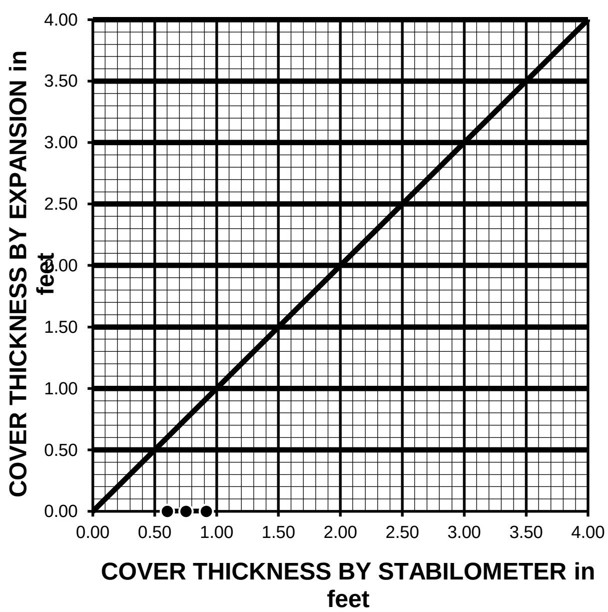
Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Date:	10/23/20
Project Number:	12915.001	Technician:	FLM/MRV
Boring Number:	LB-4	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Silty Sand (SM), Olive Brown.		

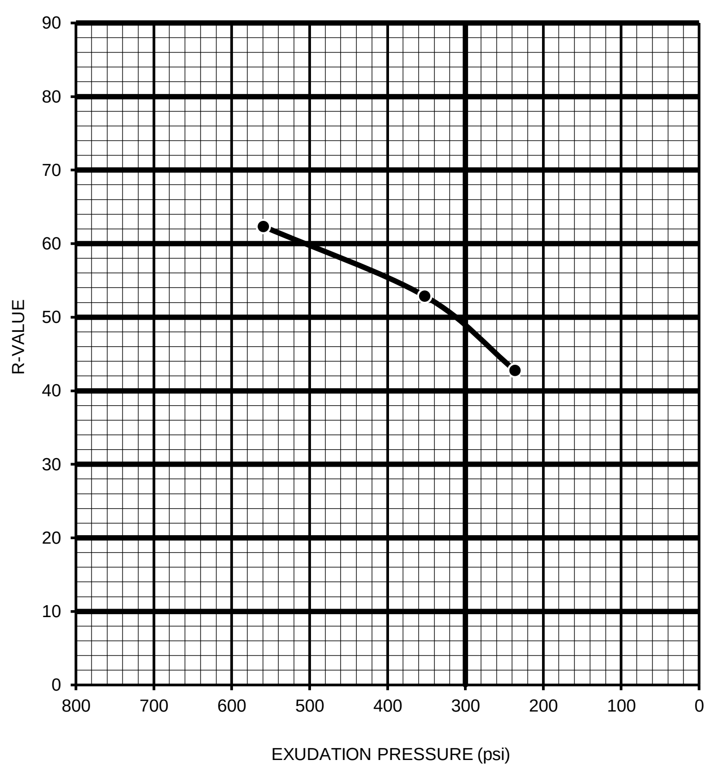
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	9.3	9.8	10.8
HEIGHT OF SAMPLE, Inches	2.52	2.51	2.55
DRY DENSITY, pcf	119.5	118.5	118.5
COMPACTOR AIR PRESSURE, psi	350	350	350
EXUDATION PRESSURE, psi	559	352	236
EXPANSION, Inches x 10exp-4	0	0	0
STABILITY Ph 2,000 lbs (160 psi)	38	50	62
TURNS DISPLACEMENT	4.85	4.90	5.29
R-VALUE UNCORRECTED	62	53	43
R-VALUE CORRECTED	62	53	43

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.60	0.75	0.92
EXPANSION PRESSURE THICKNESS, ft.	0.00	0.00	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	49
EQUILIBRIUM R-VALUE:	49

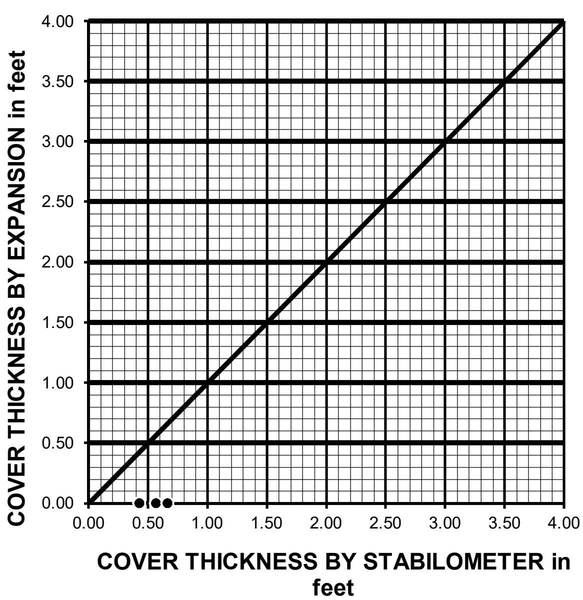
R-VALUE TEST RESULTS
ASTM D 2844

Project Name:	SoCal Arena/Riverside City Arena/Geo	Date:	10/27/20
Project Number:	12915.001	Technician:	FLM/MRV
Boring Number:	P-2	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Poorly Graded Sand with Silt (SP-SM), Olive Brown.		

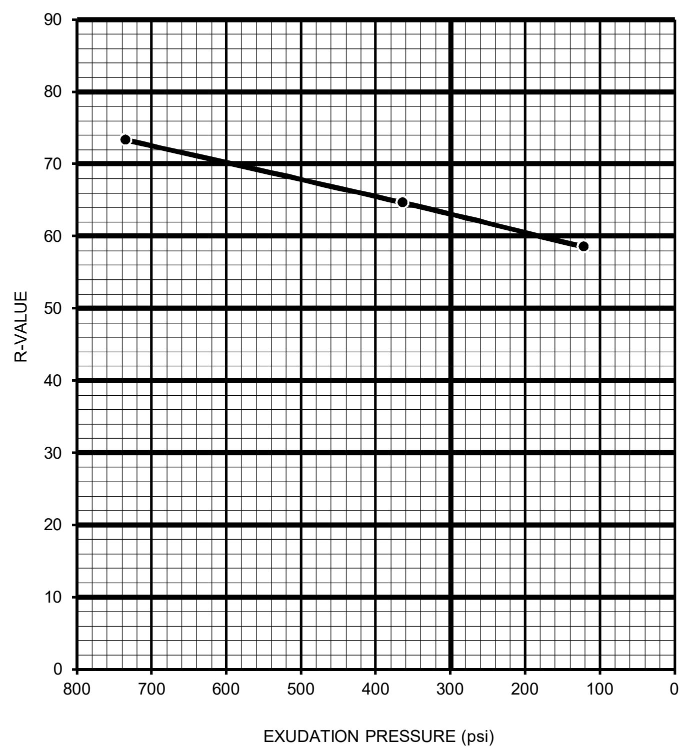
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	8.5	9.5	10.5
HEIGHT OF SAMPLE, Inches	2.51	2.55	2.55
DRY DENSITY, pcf	114.0	117.5	113.0
COMPACTOR AIR PRESSURE, psi	350	350	350
EXUDATION PRESSURE, psi	735	364	122
EXPANSION, Inches x 10exp-4	0	0	0
STABILITY Ph 2,000 lbs (160 psi)	26	35	41
TURNS DISPLACEMENT	4.68	4.88	5.14
R-VALUE UNCORRECTED	73	65	59
R-VALUE CORRECTED	73	65	59

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.43	0.57	0.66
EXPANSION PRESSURE THICKNESS, ft.	0.00	0.00	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	63
EQUILIBRIUM R-VALUE:	63

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R-VALUE TEST RESULTS

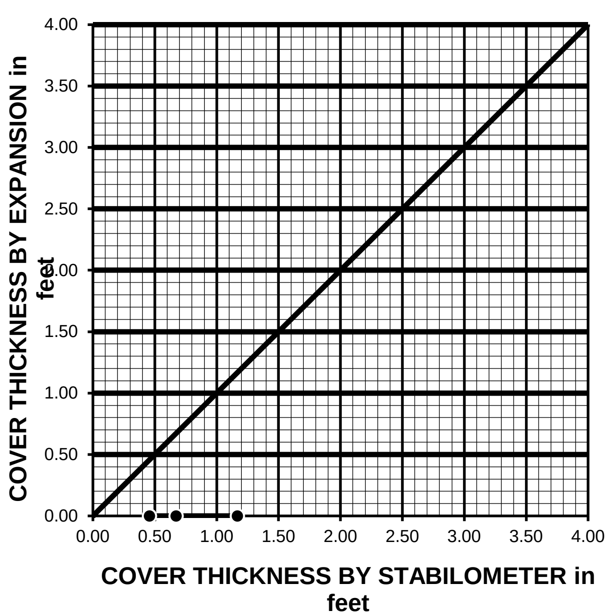
ASTM D 2844

Project Name:	SoCal Arena/Riverside City Arena/Geo	Date:	10/27/20
Project Number:	12915.001	Technician:	FLM/MRV
Boring Number:	P-6	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Silty Sand (SM), Olive Brown.		

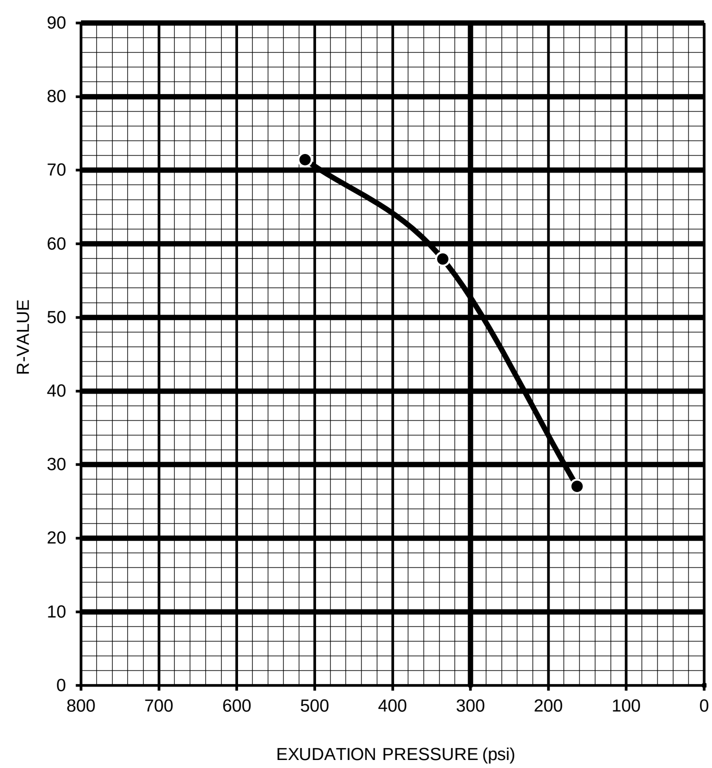
TEST SPECIMEN	**A**	**B**	**C**
MOISTURE AT COMPACTION %	9.5	10.0	11.5
HEIGHT OF SAMPLE, Inches	2.50	2.48	2.51
DRY DENSITY, pcf	119.3	118.2	116.0
COMPACTOR AIR PRESSURE, psi	350	350	350
EXUDATION PRESSURE, psi	512	336	163
EXPANSION, Inches x 10exp-4	0	0	0
STABILITY Ph 2,000 lbs (160 psi)	28	42	90
TURNS DISPLACEMENT	4.71	5.10	5.25
R-VALUE UNCORRECTED	71	58	27
R-VALUE CORRECTED	71	58	27

DESIGN CALCULATION DATA	**a**	**b**	**c**
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.46	0.67	1.17
EXPANSION PRESSURE THICKNESS, ft.	0.00	0.00	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	53
EQUILIBRIUM R-VALUE:	53

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS
ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-1	Depth (feet):	10.0		
Sample No.:	R-2				
Soil Identification:	Silty Sand (SM), Olive Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	W	Wt. of Air-Dry Soil + Cont. (g)	625.2
Wt. of Air-Dried Soil + Cont.(g)	625.2	Wt. of Dry Soil + Cont. (g)	606.5
Wt. of Container (g)	278.1	Wt. of Container No.______ (g)	278.1
Dry Wt. of Soil (g)	328.4	Moisture Content (%)	5.7

After Wet Sieve	Container No.	W
	Wt. of Dry Soil + Container (g)	544.8
	Wt. of Container (g)	278.1
	Dry Wt. of Soil Retained on # 200 Sieve (g)	266.7

U. S. Sieve Size		Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
(in.)	(mm.)		
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360	0.0	100.0
#16	1.180	0.1	100.0
#30	0.600	13.4	95.9
#50	0.300	66.6	79.7
#100	0.150	148.4	54.8
#200	0.075	249.6	24.0
PAN			

GRAVEL: **0 %**

SAND: **76 %**

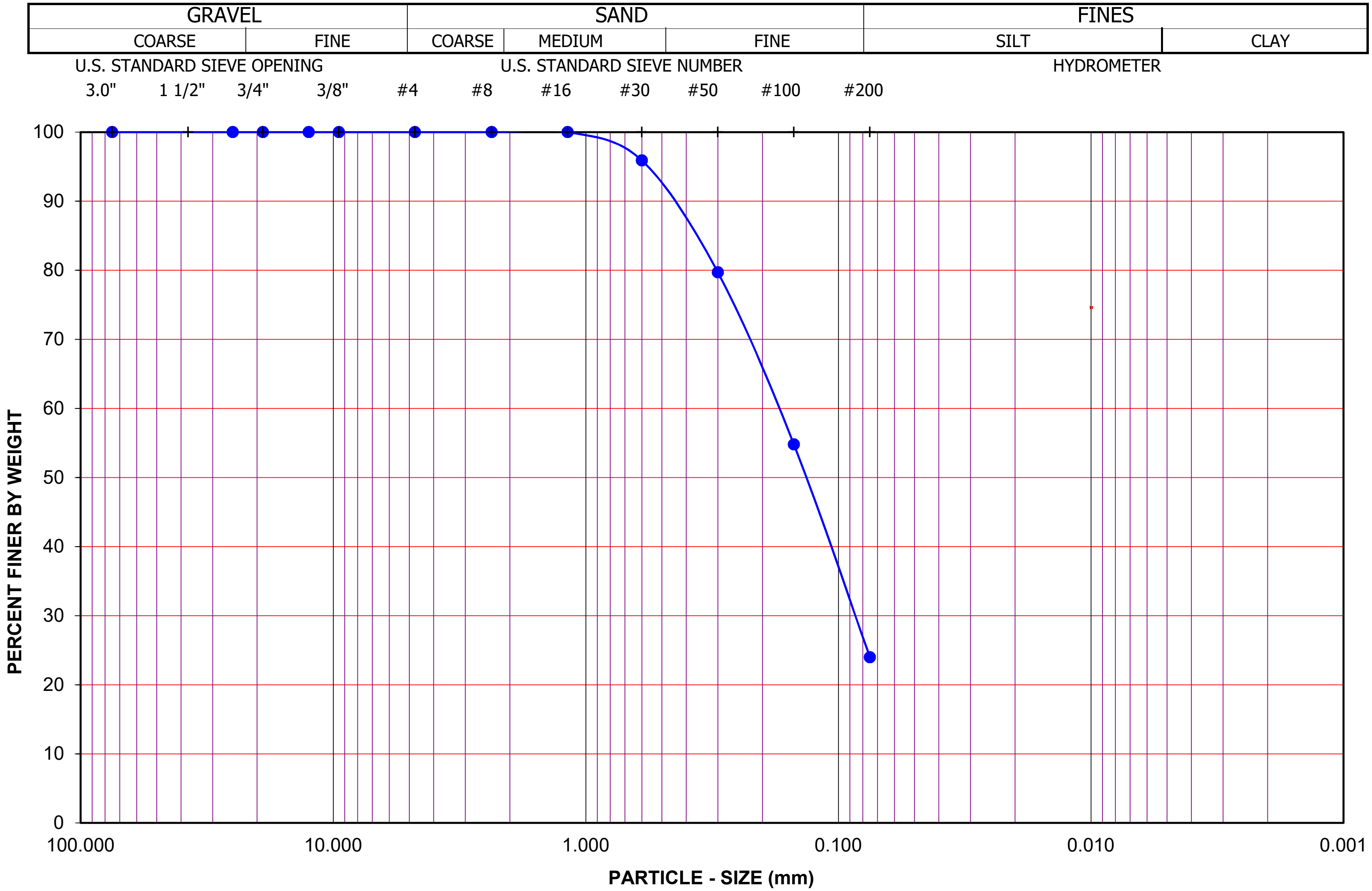
FINES: **24 %**

GROUP SYMBOL: **SM**

$Cu = D60/D10 =$ N/A

$Cc = (D30)^2/(D60*D10) =$ N/A

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-1 Sample No.: R-2

Depth (feet): 10.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Olive Brown.

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 76 : 24

Oct-20

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS
ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-2	Depth (feet):	30.0		
Sample No.:	R-6				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Light Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	BA	Wt. of Air-Dry Soil + Cont. (g)	619.2
Wt. of Air-Dried Soil + Cont.(g)	619.2	Wt. of Dry Soil + Cont. (g)	606.9
Wt. of Container (g)	278.1	Wt. of Container No.______ (g)	278.1
Dry Wt. of Soil (g)	328.8	Moisture Content (%)	3.7

After Wet Sieve	Container No.	BA
	Wt. of Dry Soil + Container (g)	580.9
	Wt. of Container (g)	278.1
	Dry Wt. of Soil Retained on # 200 Sieve (g)	302.8

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360		100.0
#16	1.180	0.0	100.0
#30	0.600	18.3	94.4
#50	0.300	171.7	47.8
#100	0.150	232.5	29.3
#200	0.075	291.1	11.5
PAN			

GRAVEL: **0 %**

SAND: **88 %**

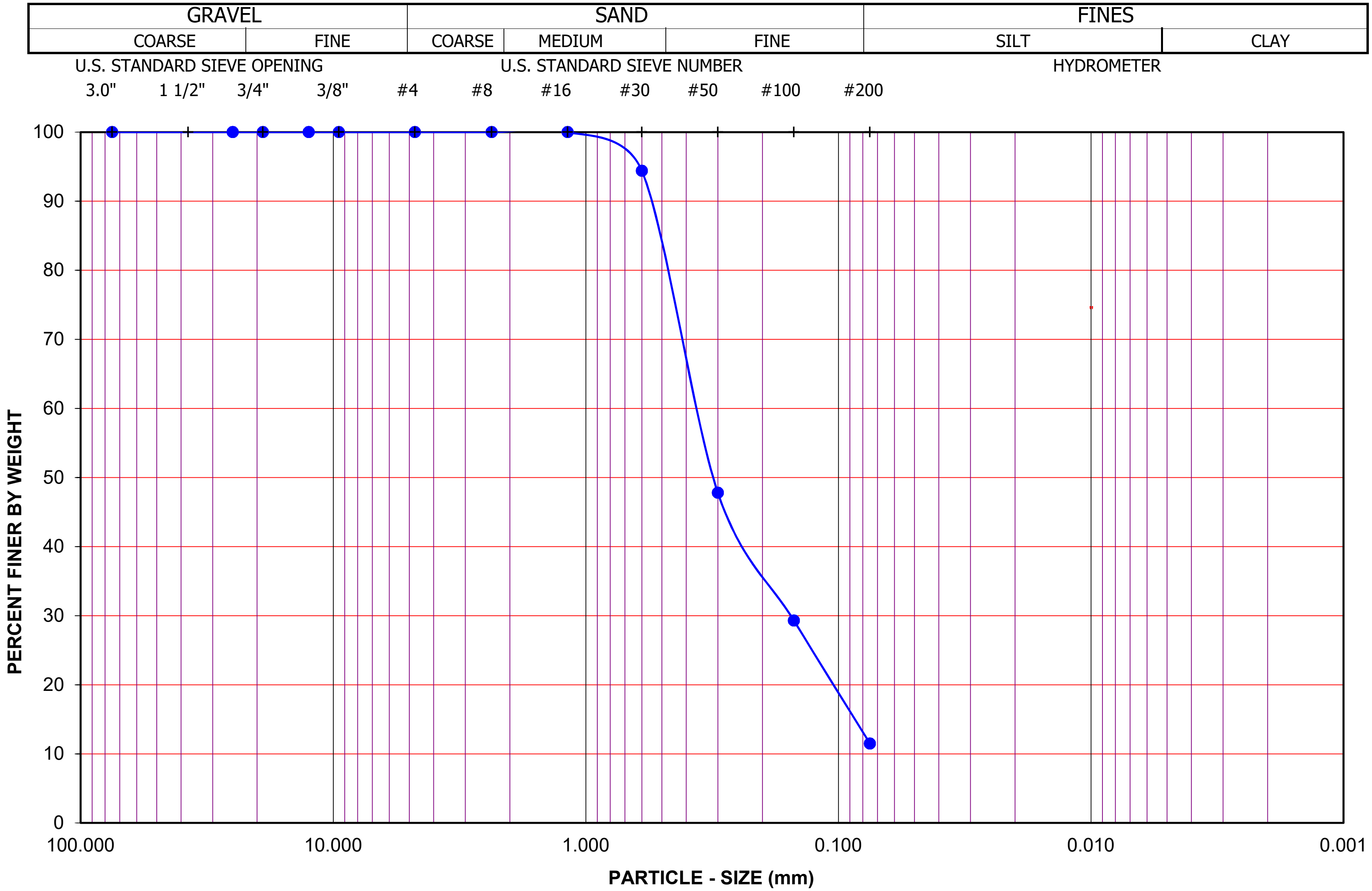
FINES: **12 %**

GROUP SYMBOL: **SP-SM**

Cu = D60/D10 = 5.14

Cc = $(D30)^2/(D60*D10)$ = 0.95

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-2 Sample No.: R-6

Depth (feet): 30.0 Soil Type : SP-SM

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Light Brown.

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PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 88 : 12

Oct-20

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-2	Depth (feet):	45.0		
Sample No.:	S-9				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Light Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	LB	Wt. of Air-Dry Soil + Cont. (g)	622.5
Wt. of Air-Dried Soil + Cont.(g)	622.5	Wt. of Dry Soil + Cont. (g)	613.7
Wt. of Container (g)	275.9	Wt. of Container No.______ (g)	275.9
Dry Wt. of Soil (g)	337.8	Moisture Content (%)	2.6

After Wet Sieve	Container No.	LB
	Wt. of Dry Soil + Container (g)	595.9
	Wt. of Container (g)	275.9
	Dry Wt. of Soil Retained on # 200 Sieve (g)	320.0

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360		100.0
#16	1.180	0.0	100.0
#30	0.600	6.4	98.1
#50	0.300	129.0	61.8
#100	0.150	261.5	22.6
#200	0.075	315.6	6.6
PAN			

GRAVEL: **0 %**

SAND: **93 %**

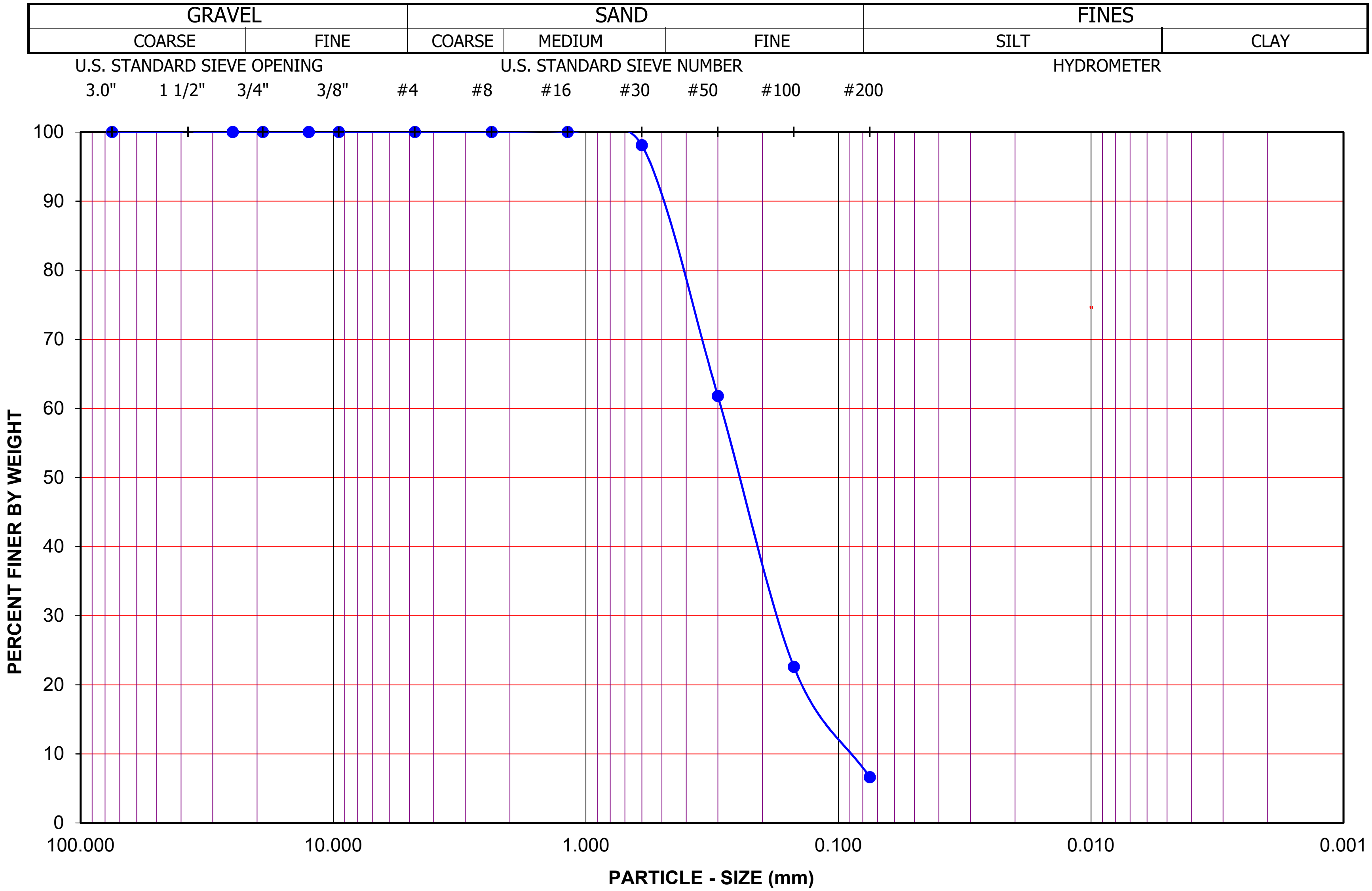
FINES: **7 %**

GROUP SYMBOL: **SP-SM**

Cu = D60/D10 = 3.26

Cc = $(D30)^2/(D60*D10)$ = 1.12

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Boring No.: P-2

Sample No.: S-9

Depth (feet): 45.0

Soil Type : SP-SM

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Light Brown.

GR:SA:FI : (%) 0 : 93 : 7

Oct-20

Sieve; P-2, S-9 (10-09-20), rev 10-29-20

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS
ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-3	Depth (feet):	5.0		
Sample No.:	R-1				
Soil Identification:	Silty Sand (SM), Olive Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	MA	Wt. of Air-Dry Soil + Cont. (g)	628.7
Wt. of Air-Dried Soil + Cont.(g)	628.7	Wt. of Dry Soil + Cont. (g)	616.1
Wt. of Container (g)	280.0	Wt. of Container No.______ (g)	280.0
Dry Wt. of Soil (g)	336.1	Moisture Content (%)	3.7

After Wet Sieve	Container No.	MA
	Wt. of Dry Soil + Container (g)	571.5
	Wt. of Container (g)	280.0
	Dry Wt. of Soil Retained on # 200 Sieve (g)	291.5

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360	0.0	100.0
#16	1.180	0.5	99.9
#30	0.600	19.5	94.2
#50	0.300	136.1	59.5
#100	0.150	213.0	36.6
#200	0.075	283.0	15.8
PAN			

GRAVEL: **0 %**

SAND: **84 %**

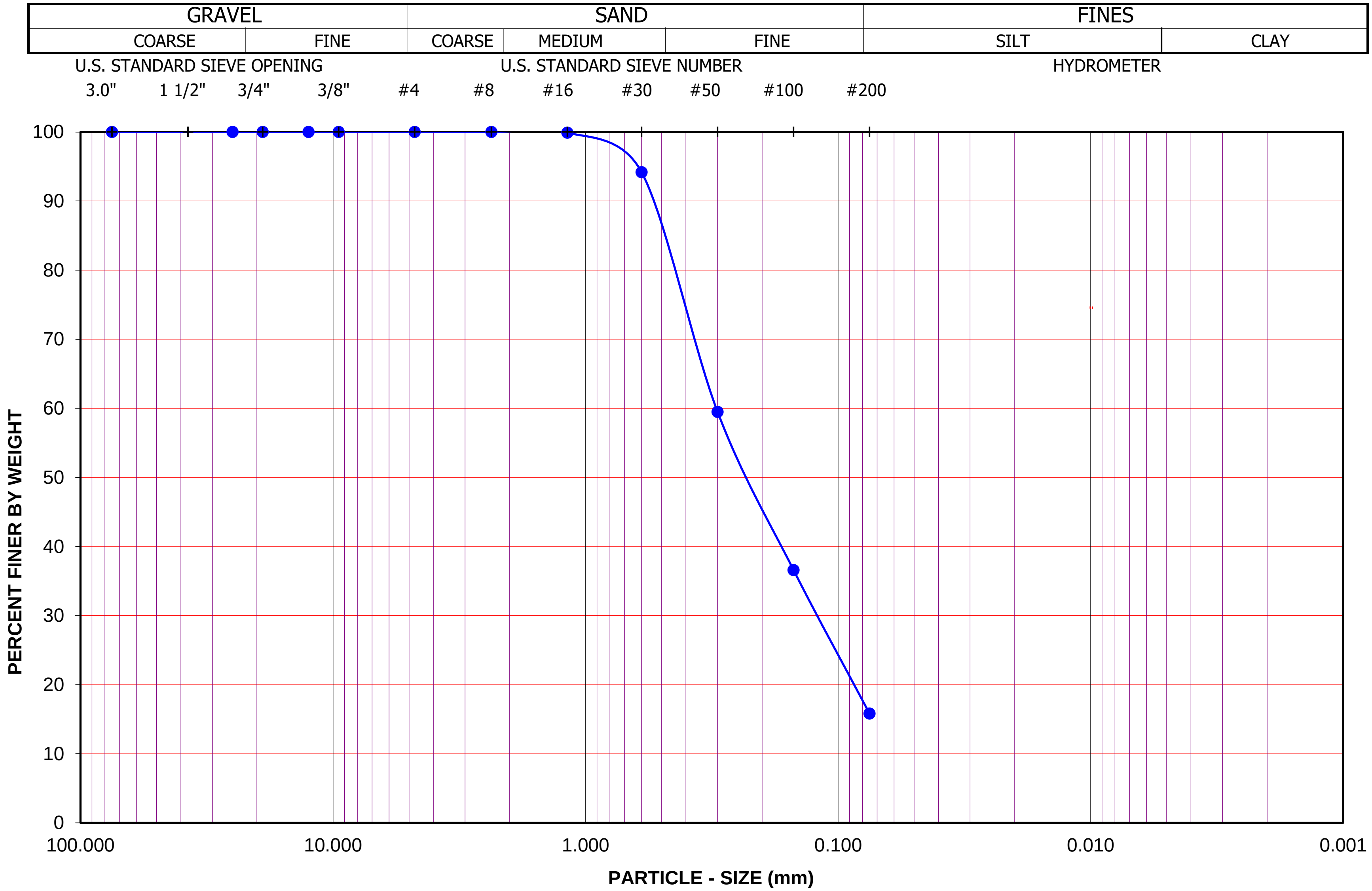
FINES: **16 %**

GROUP SYMBOL: **SM**

Cu = D60/D10 = N/A

Cc = (D30)²/(D60*D10) = N/A

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-3 Sample No.: R-1

Depth (feet): 5.0 Soil Type : SM

Soil Identification: Silty Sand (SM), Olive Brown.

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 84 : 16

Oct-20

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS
ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-3	Depth (feet):	15.0		
Sample No.:	R-3				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Light Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	X	Wt. of Air-Dry Soil + Cont. (g)	606.7
Wt. of Air-Dried Soil + Cont.(g)	606.2	Wt. of Dry Soil + Cont. (g)	598.6
Wt. of Container (g)	276.5	Wt. of Container No.______ (g)	276.5
Dry Wt. of Soil (g)	322.1	Moisture Content (%)	2.5

After Wet Sieve	Container No.	X
	Wt. of Dry Soil + Container (g)	581.3
	Wt. of Container (g)	276.5
	Dry Wt. of Soil Retained on # 200 Sieve (g)	304.8

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360		100.0
#16	1.180	0.0	100.0
#30	0.600	8.6	97.3
#50	0.300	139.7	56.6
#100	0.150	237.9	26.1
#200	0.075	297.4	7.7
PAN			

GRAVEL: **0 %**

SAND: **92 %**

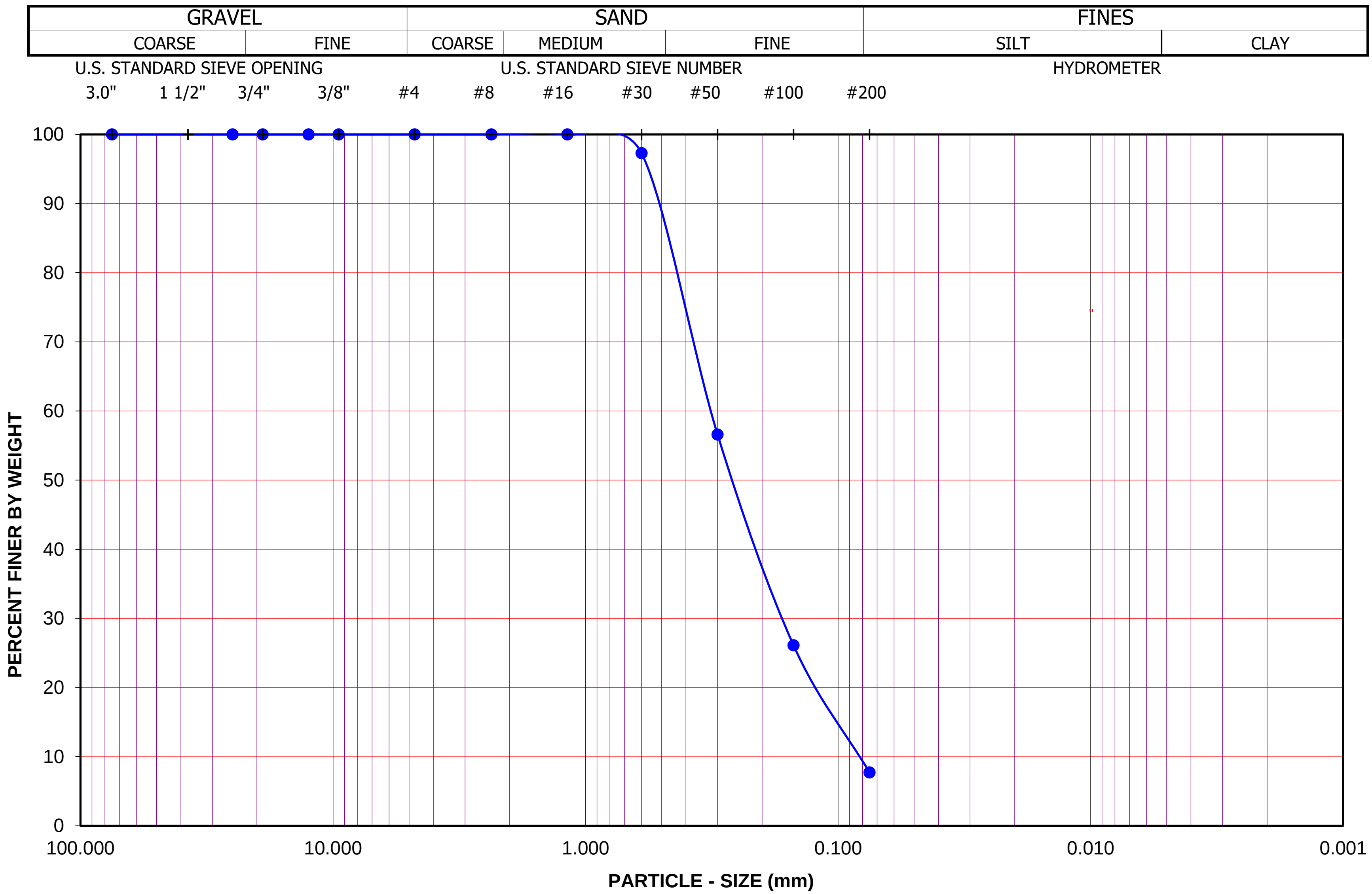
FINES: **8 %**

GROUP SYMBOL: **SP-SM**

Cu = D60/D10 = 3.88

Cc = $(D30)^2/(D60*D10)$ = 1.17

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-3 Sample No.: R-3

Depth (feet): 15.0 Soil Type : SP-SM

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Light Brown.

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 92 : 8

Oct-20

Sieve; P-3, R-3 (10-09-20)

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS
ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-4	Depth (feet):	5.0		
Sample No.:	R-1				
Soil Identification:	Silty Sand (SM), Olive Brown				

		Moisture Content of Total Air - Dry Soil	
Container No.:	LA	Wt. of Air-Dry Soil + Cont. (g)	605.8
Wt. of Air-Dried Soil + Cont.(g)	605.8	Wt. of Dry Soil + Cont. (g)	595.0
Wt. of Container (g)	281.1	Wt. of Container No.______ (g)	281.1
Dry Wt. of Soil (g)	313.9	Moisture Content (%)	3.4

After Wet Sieve	Container No.	LA
	Wt. of Dry Soil + Container (g)	551.1
	Wt. of Container (g)	281.1
	Dry Wt. of Soil Retained on # 200 Sieve (g)	270.0

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360	0.0	100.0
#16	1.180	0.3	99.9
#30	0.600	21.1	93.3
#50	0.300	81.0	74.2
#100	0.150	166.1	47.1
#200	0.075	256.1	18.4
PAN			

GRAVEL: **0 %**

SAND: **82 %**

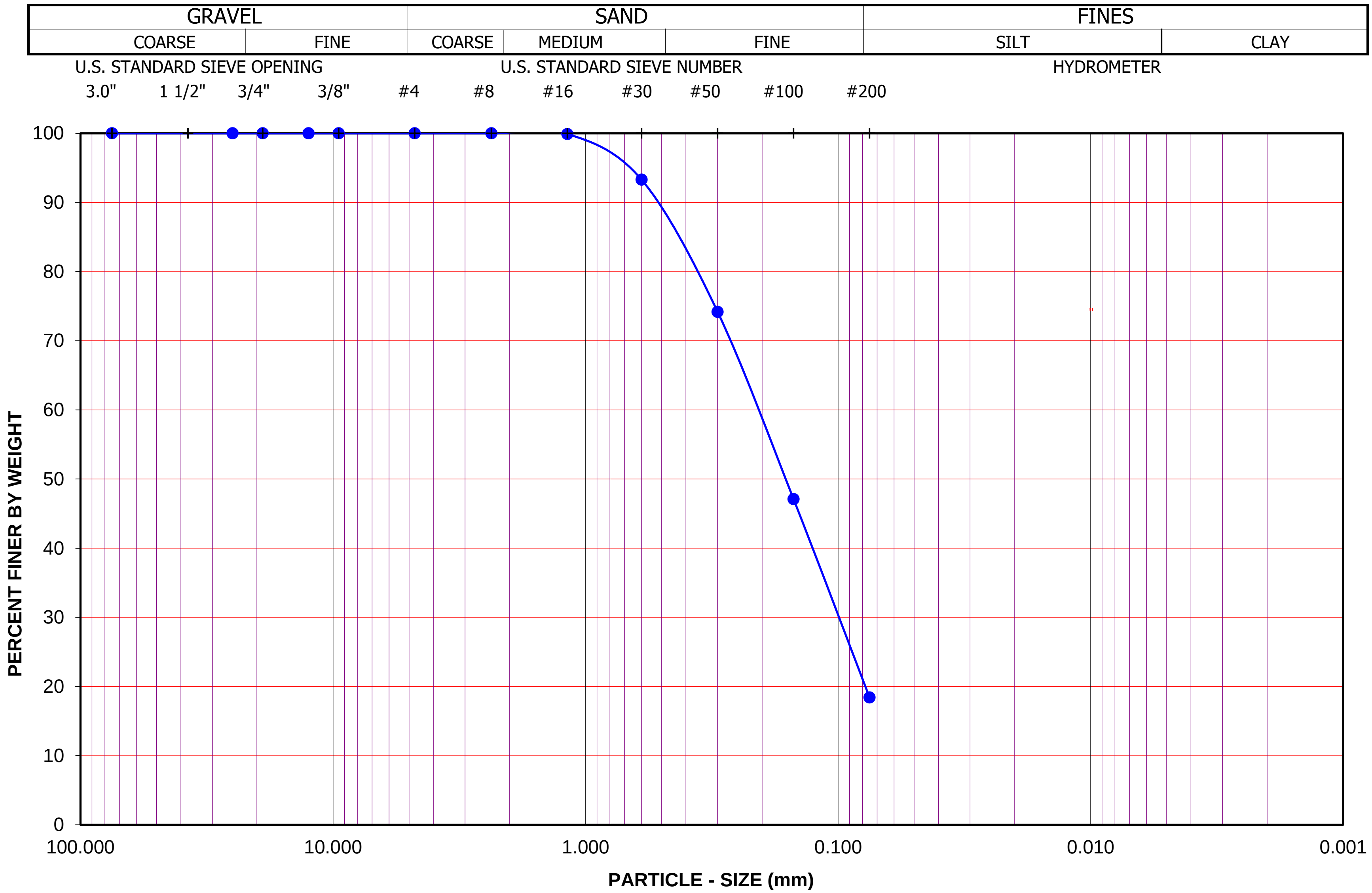
FINES: **18 %**

GROUP SYMBOL: **SM**

$Cu = D60/D10 =$ N/A

$Cc = (D30)^2/(D60*D10) =$ N/A

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Boring No.: P-4

Sample No.: R-1

Depth (feet): 5.0

Soil Type : SM

Soil Identification: Silty Sand (SM), Olive Brown

GR:SA:FI : (%) 0 : 82 : 18

Oct-20

Sieve; P-4, R-1 (10-09-20)

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-5	Depth (feet):	15.0		
Sample No.:	R-3				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Light Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	BA	Wt. of Air-Dry Soil + Cont. (g)	611.0
Wt. of Air-Dried Soil + Cont.(g)	611.0	Wt. of Dry Soil + Cont. (g)	602.2
Wt. of Container (g)	277.8	Wt. of Container No.______ (g)	277.8
Dry Wt. of Soil (g)	324.4	Moisture Content (%)	2.7

After Wet Sieve	Container No.	BA
	Wt. of Dry Soil + Container (g)	585.7
	Wt. of Container (g)	277.8
	Dry Wt. of Soil Retained on # 200 Sieve (g)	307.9

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360		100.0
#16	1.180	0.0	100.0
#30	0.600	1.2	99.6
#50	0.300	8.6	97.3
#100	0.150	75.4	76.8
#200	0.075	292.7	9.8
PAN			

GRAVEL: **0 %**

SAND: **90 %**

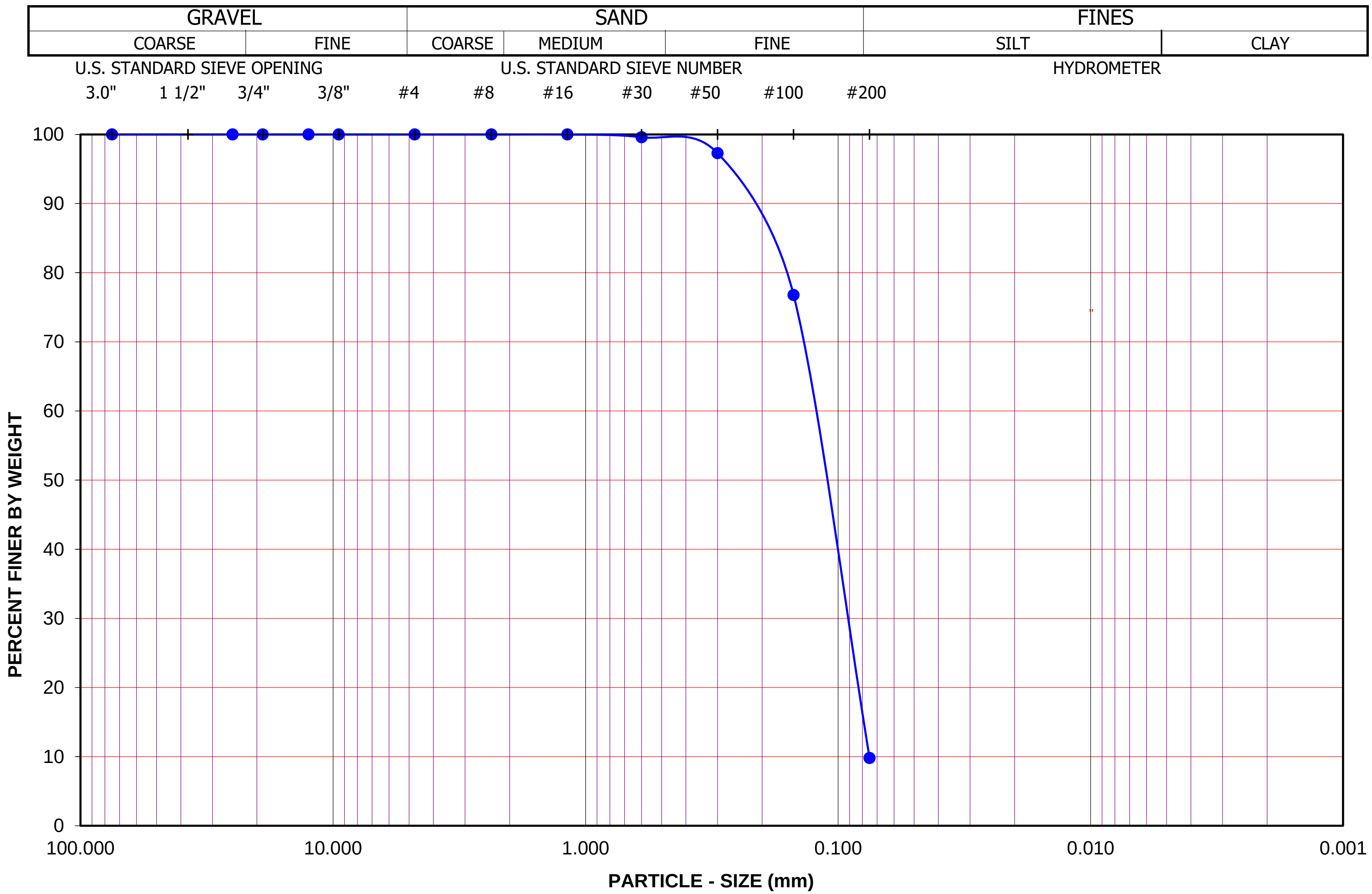
FINES: **10 %**

GROUP SYMBOL: **SP-SM**

$Cu = D60/D10 =$ 1.73

$Cc = (D30)^2/(D60*D10) =$ 0.83

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-5 | Sample No.: R-3

Depth (feet): 15.0 | Soil Type : SP-SM

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Light Brown.

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

GR:SA:FI : (%) 0 : 90 : 10

Oct-20

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Leighton

Project Name:	SoCal Arena/Riverside City Arena/Geo	Tested By:	MRV	Date:	10/23/20
Project No.:	12915.001	Checked By:	MRV	Date:	10/28/20
Boring No.:	P-6	Depth (feet):	10.0		
Sample No.:	R-2				
Soil Identification:	Poorly Graded Sand with Silt (SP-SM), Light Brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	AC-1	Wt. of Air-Dry Soil + Cont. (g)	592.1
Wt. of Air-Dried Soil + Cont.(g)	592.1	Wt. of Dry Soil + Cont. (g)	588.5
Wt. of Container (g)	278.4	Wt. of Container No.______ (g)	278.4
Dry Wt. of Soil (g)	310.1	Moisture Content (%)	1.2

After Wet Sieve	Container No.	AC-1
	Wt. of Dry Soil + Container (g)	567.9
	Wt. of Container (g)	278.4
	Dry Wt. of Soil Retained on # 200 Sieve (g)	289.5

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750		100.0
#8	2.360	0.0	100.0
#16	1.180	14.0	95.5
#30	0.600	52.9	82.9
#50	0.300	107.0	65.5
#100	0.150	197.5	36.3
#200	0.075	279.5	9.9
PAN			

GRAVEL: **0 %**

SAND: **90 %**

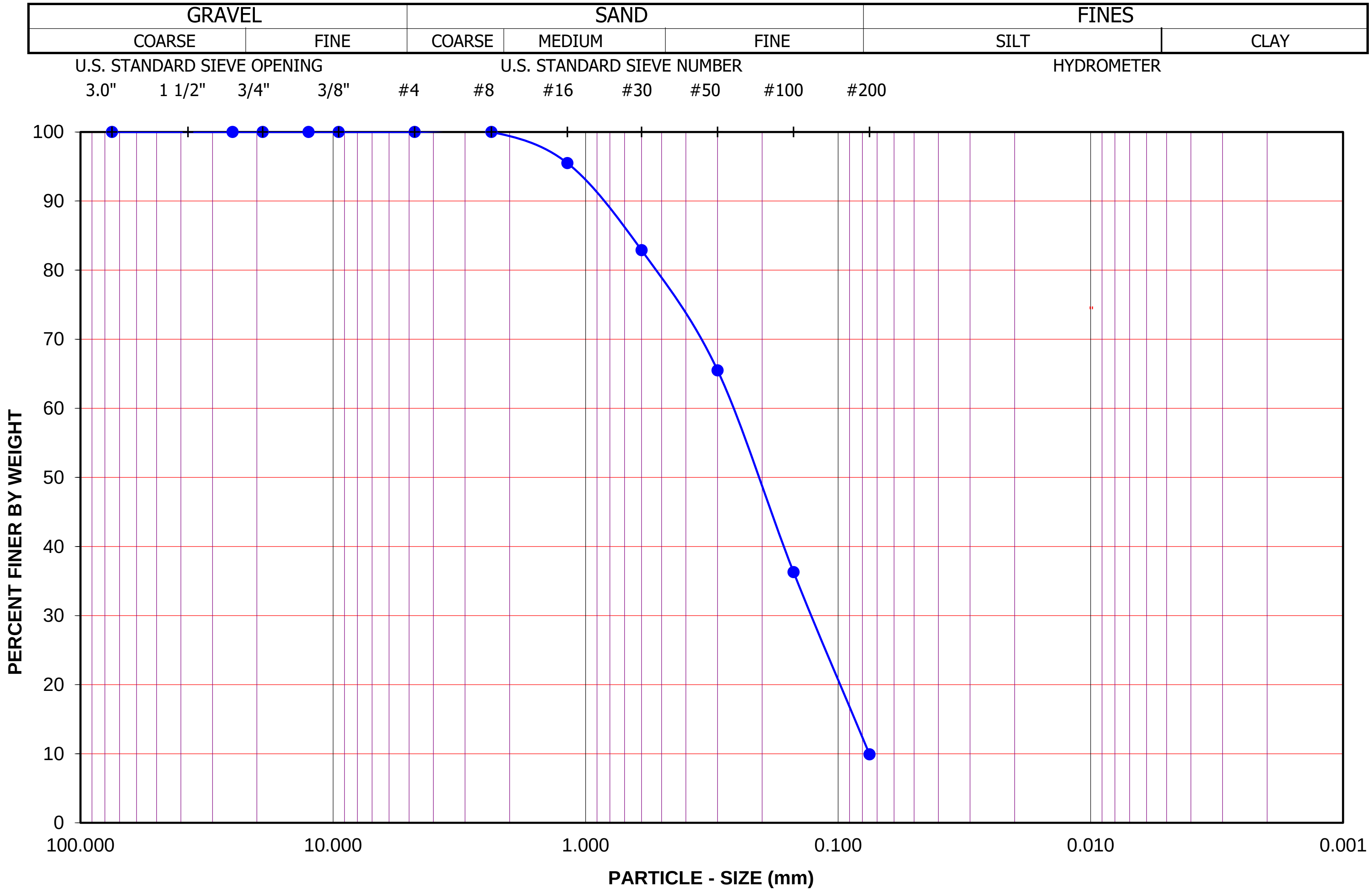
FINES: **10 %**

GROUP SYMBOL: **SP-SM**

$Cu = D60/D10 =$ 3.47

$Cc = (D30)^2/(D60*D10) =$ 1.01

Remarks:



Project Name: SoCal Arena/Riverside City Arena/Geo

Project No.: 12915.001

Boring No.: P-6 | Sample No.: R-2

Depth (feet): 10.0 | Soil Type : SP-SM

Soil Identification: Poorly Graded Sand with Silt (SP-SM), Light Brown.

GR:SA:FI : (%) **0 : 90 : 10**

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Oct-20

APPENDIX B-2

Geotechnical Laboratory Testing
(Previous Studies ESS 2004)

Leighton

APPENDIX B

Laboratory Test Results

UNIT DENSITIES AND MOISTURE CONTENT

ASTM D2937 & D2216

Job Name: World Trade Center

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B1	5	105	1	SP-SM
B1	10	105	1	SP-SM/ML
B1	15	102	3	SP-SM/ML
B1	25	108	2	SP-SM/ML
B2	5	102	3	SP-SM/ML
B2	10	87	3	SP-SM/ML
B2	15	105	2	SP-SM/ML
B2	20	107	1	SP-SM
B2	50	95	1	SP-SM
B3	5	104	3	SP-SM/ML
B3	10	94	3	SP-SM/ML
B3	15	111	1	SP-SM
B3	20	103	4	SP-SM/ML
B4	5	90	5	SP-SM/ML
B4	10	105	3	SP-SM/ML
B4	15	112	1	SP-SM/ML
B4	20	105	2	SP-SM/ML
B5	5	98	3	SP-SM/ML
B5	10	89	5	SM & ML
B5	15	106	4	SM/ML
B6	5	98	2	SP-SM
B6	10	105	2	SM
B6	15	101	2	SM
B6	20	110	1	SP-SM

CONSOLIDATION TEST

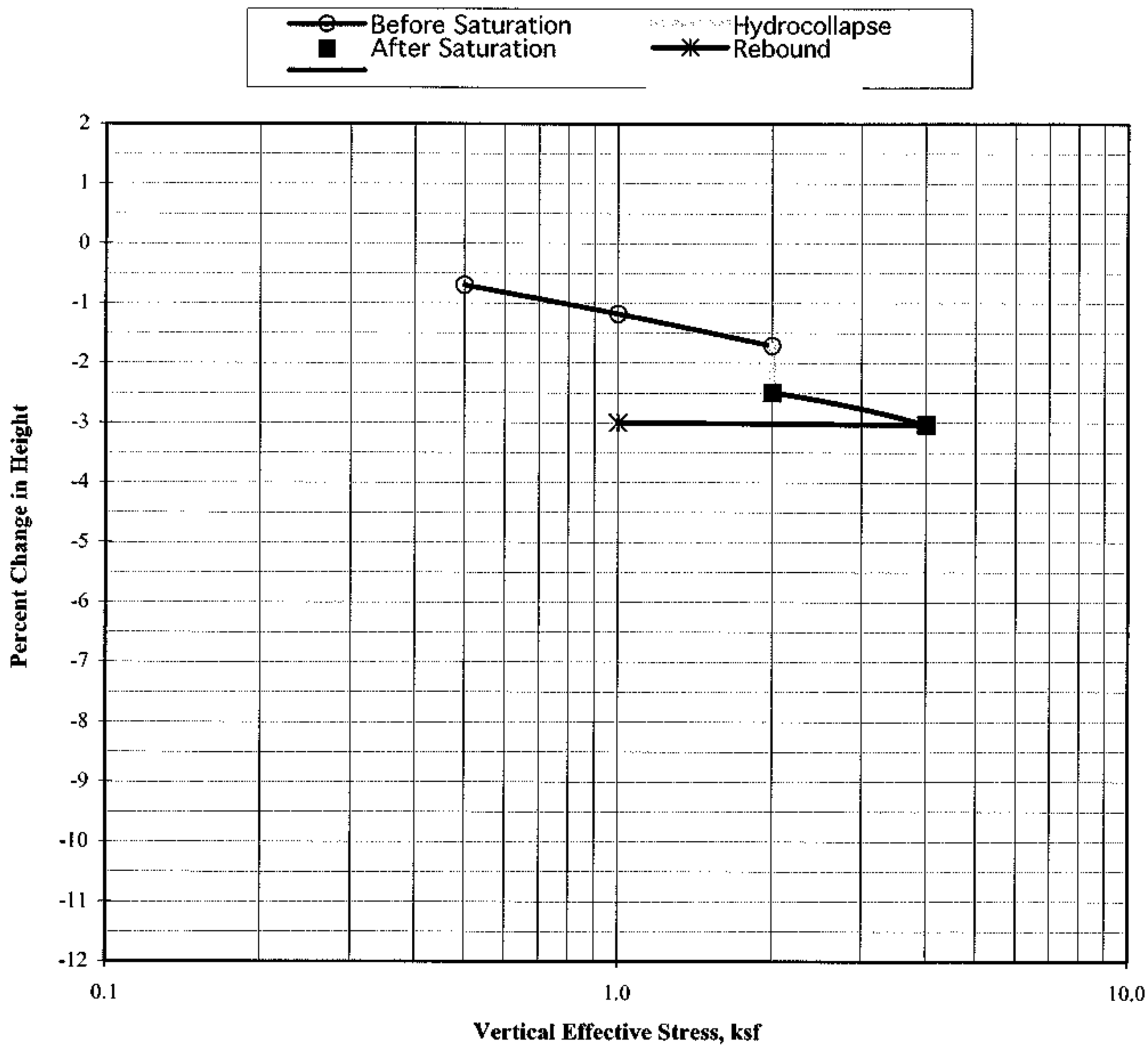
ASTM D 2435 & D 5333

World Trade Center
B1 @ 15' Feet
Silty Sand: F w/ Silt Layers (SM)
Ring Sample

Initial Dry Density: 108.0 pcf
Initial Moisture, %: 3.1%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.543

Hydrocollapse: 0.8% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



CONSOLIDATION TEST

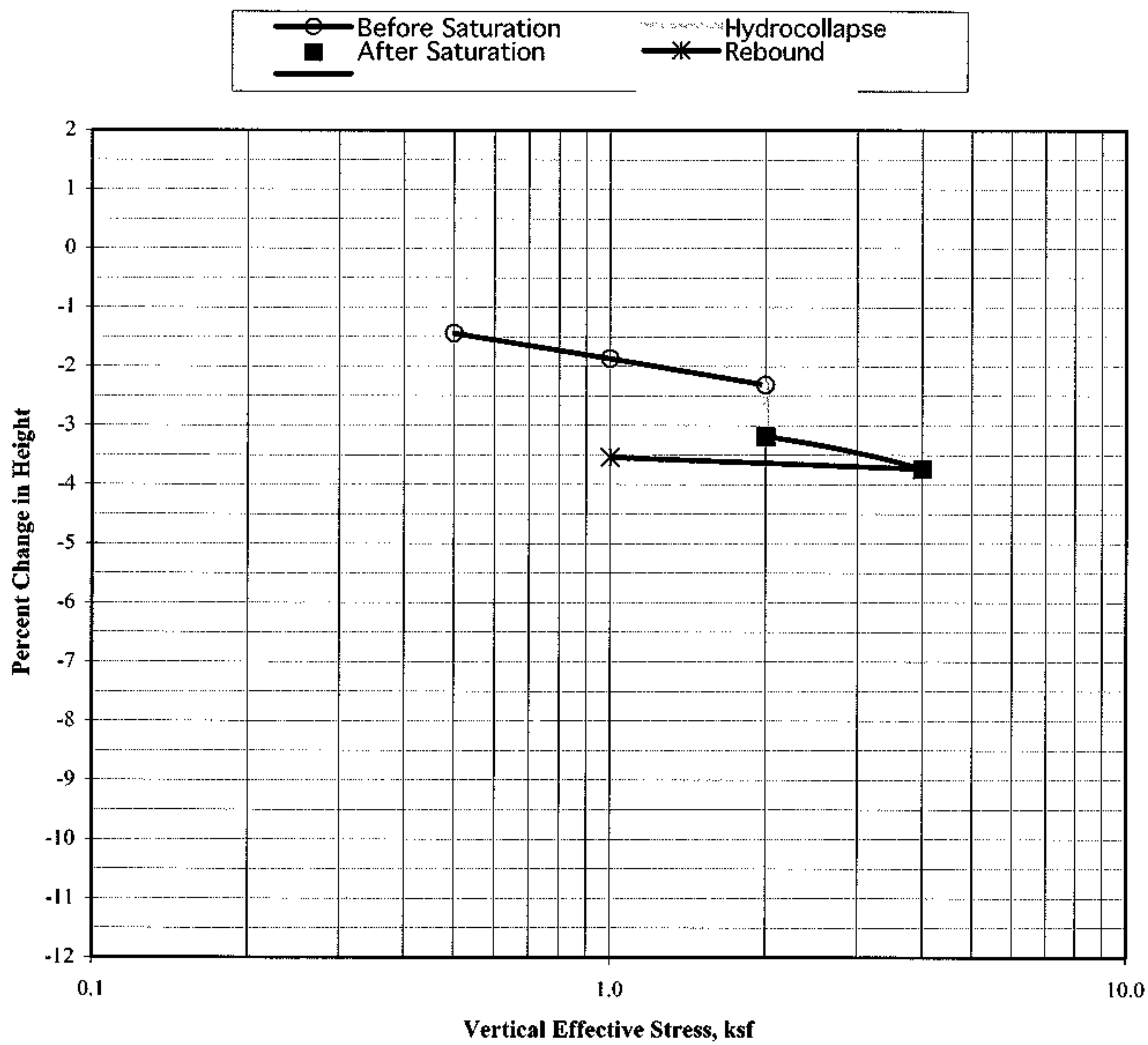
ASTM D 2435 & D 5333

World Trade Center
B2 @ 20' Feet
Sand: F to M (SP-SM)
Ring Sample

Initial Dry Density: 104.9 pcf
Initial Moisture, %: 1.3%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.589

Hydrocollapse: 0.9% @ 2.0 ksf

% Change in Height vs Normal Presssure Diagram



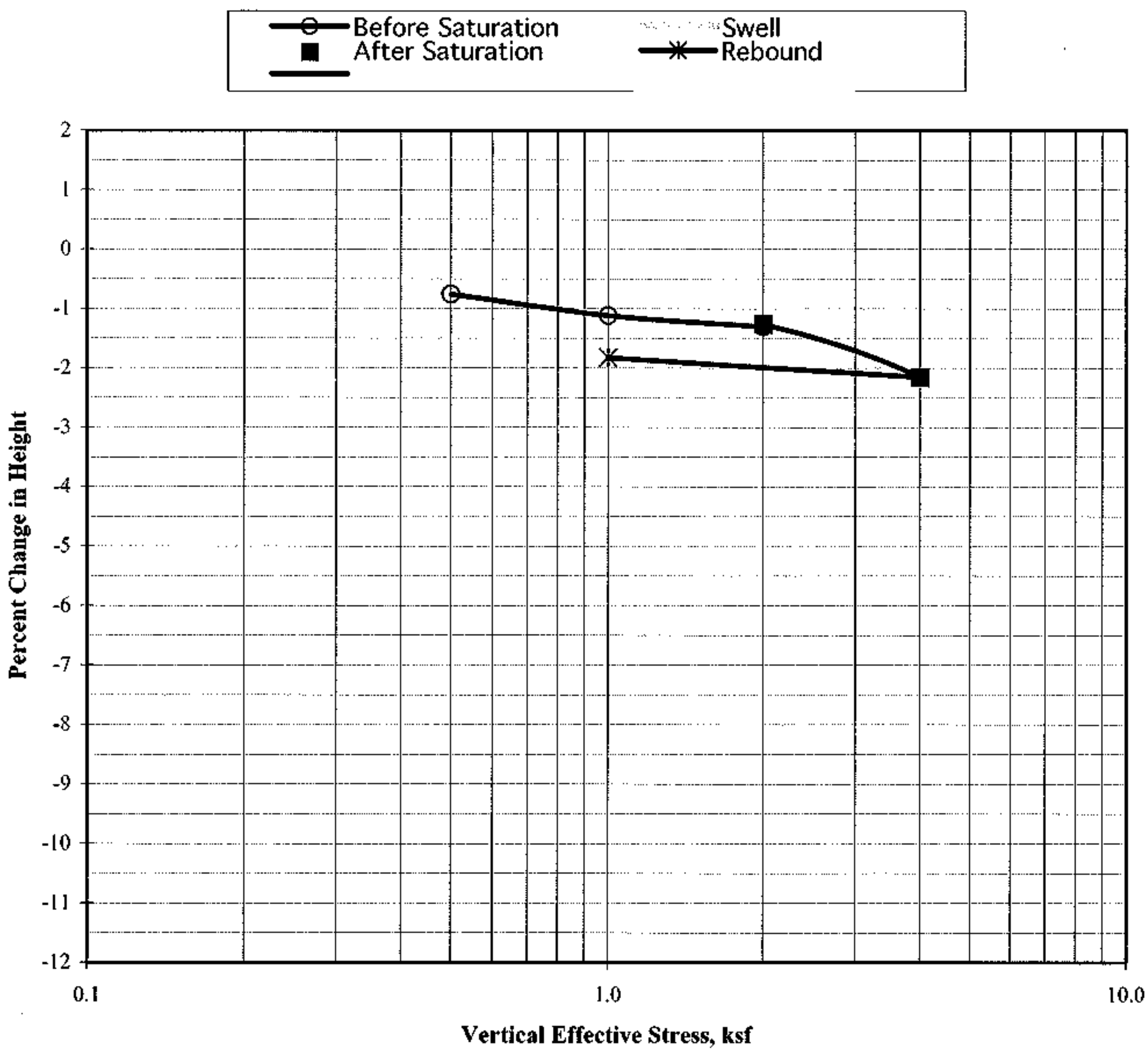
CONSOLIDATION TEST

ASTM D 2435

World Trade Center
B5 @ 15' Feet
Silt (ML)
Ring Sample

Initial Dry Density: 113.2 pcf
Initial Moisture, %: 3.9%
Specific Gravity (assumed): 2.67
Initial Void Ratio: 0.473

% Change in Height vs Normal Presssure Diagram



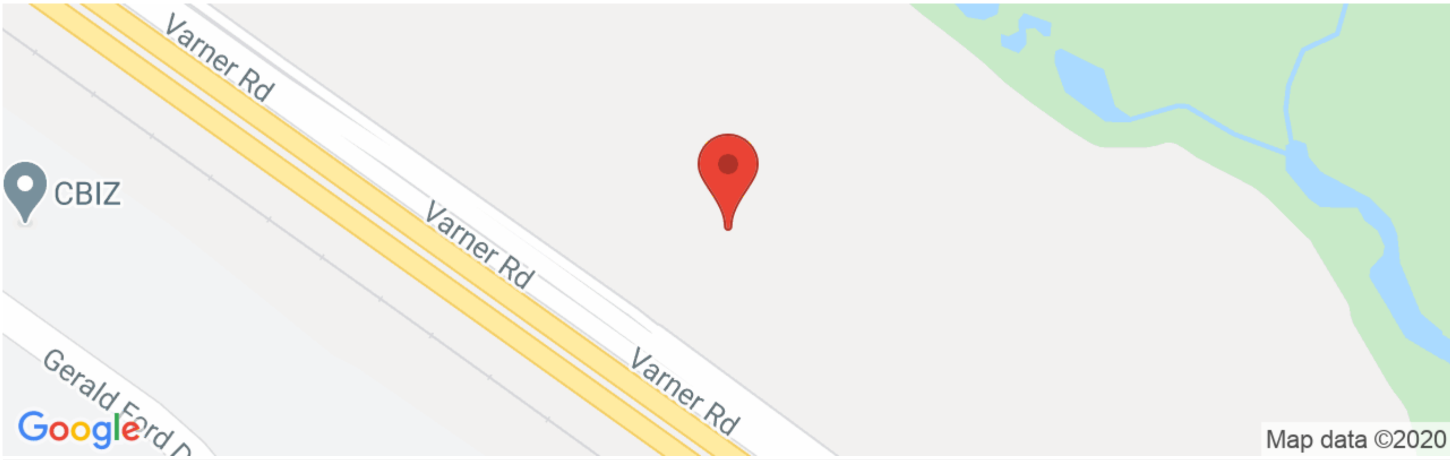
APPENDIX C

SEISMIC PARAMETERS

Leighton

12915.001

Latitude, Longitude: 33.7798, -116.3410



Date	10/15/2020, 2:39:56 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.981	MCE_R ground motion. (for 0.2 second period)
S_1	0.785	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.981	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.32	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.818	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.9	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.224	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.484	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.981	Factored deterministic acceleration value. (0.2 second)
S1RT	0.882	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	1.002	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.785	Factored deterministic acceleration value. (1.0 second)
PGAd	0.818	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.895	Mapped value of the risk coefficient at short periods
C_{R1}	0.881	Mapped value of the risk coefficient at a period of 1 s

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Latitude

Decimal degrees

33.77968176

Longitude

Decimal degrees, negative values for western longitudes

-116.34031514

Site Class

259 m/s (Site class D)

Spectral Period

Peak Ground Acceleration

Time Horizon

Return period in years

475

Hazard Curve

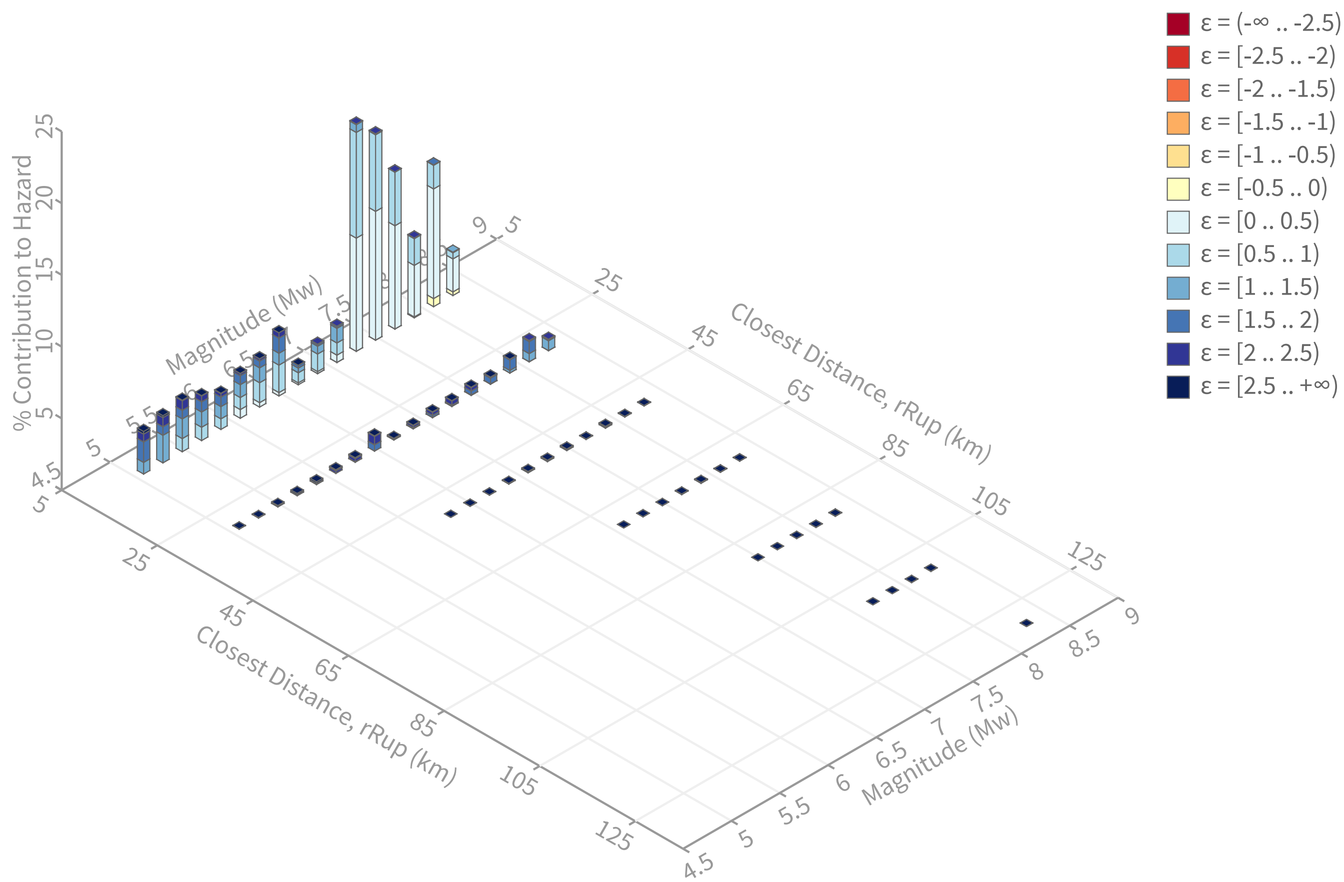
Please select “Edition”, “Location” & “Site Class” above to compute a hazard curve.

Compute Hazard Curve

^ Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 475 yrs
Exceedance rate: 0.0021052632 yr^{-1}
PGA ground motion: 0.54536705 g

Recovered targets

Return period: 507.02863 yrs
Exceedance rate: 0.0019722752 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.14 %

Mean (over all sources)

m: 7.11
r: 9.34 km
ε_0: 0.82 σ

Mode (largest m-r bin)

m: 7.34
r: 6.54 km
ε_0: 0.55 σ
Contribution: 15.83 %

Mode (largest m-r-ε_0 bin)

m: 7.49
r: 5.9 km
ε_0: 0.29 σ
Contribution: 8.98 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							37.82
San Andreas (San Gorgonio Pass-Garnet HIll) [0]		5.85	7.56	0.44	116.310°W	33.824°N	29.23	26.78
San Andreas (North Branch Mill Creek) [11]		6.66	7.86	0.27	116.295°W	33.819°N	43.34	3.14
San Andreas (Coachella) rev [0]		8.75	7.14	0.85	116.246°W	33.788°N	83.72	2.16
San Jacinto (Anza) rev [5]		35.47	7.94	1.70	116.572°W	33.526°N	217.22	1.86
UC33brAvg_FM32	System							37.82
San Andreas (San Gorgonio Pass-Garnet HIll) [0]		5.85	7.55	0.44	116.310°W	33.824°N	29.23	26.68
San Andreas (North Branch Mill Creek) [11]		6.66	7.83	0.28	116.295°W	33.819°N	43.34	3.35
San Andreas (Coachella) rev [0]		8.75	7.11	0.86	116.246°W	33.788°N	83.72	2.00
San Jacinto (Anza) rev [5]		35.47	7.94	1.71	116.572°W	33.526°N	217.22	1.85
UC33brAvg_FM31 (opt)	Grid							12.18
PointSourceFinite: -116.340, 33.820		6.84	5.60	1.11	116.340°W	33.820°N	0.00	1.86
PointSourceFinite: -116.340, 33.820		6.84	5.60	1.11	116.340°W	33.820°N	0.00	1.86
PointSourceFinite: -116.340, 33.829		7.30	5.72	1.13	116.340°W	33.829°N	0.00	1.55
PointSourceFinite: -116.340, 33.829		7.30	5.72	1.13	116.340°W	33.829°N	0.00	1.55
UC33brAvg_FM32 (opt)	Grid							12.18
PointSourceFinite: -116.340, 33.820		6.84	5.60	1.11	116.340°W	33.820°N	0.00	1.86
PointSourceFinite: -116.340, 33.820		6.84	5.60	1.11	116.340°W	33.820°N	0.00	1.86
PointSourceFinite: -116.340, 33.829		7.31	5.72	1.13	116.340°W	33.829°N	0.00	1.55
PointSourceFinite: -116.340, 33.829		7.31	5.72	1.13	116.340°W	33.829°N	0.00	1.55

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Latitude

Decimal degrees

33.77968176

Longitude

Decimal degrees, negative values for western longitudes

-116.34031514

Site Class

259 m/s (Site class D)

Spectral Period

Peak Ground Acceleration

Time Horizon

Return period in years

2475

Hazard Curve

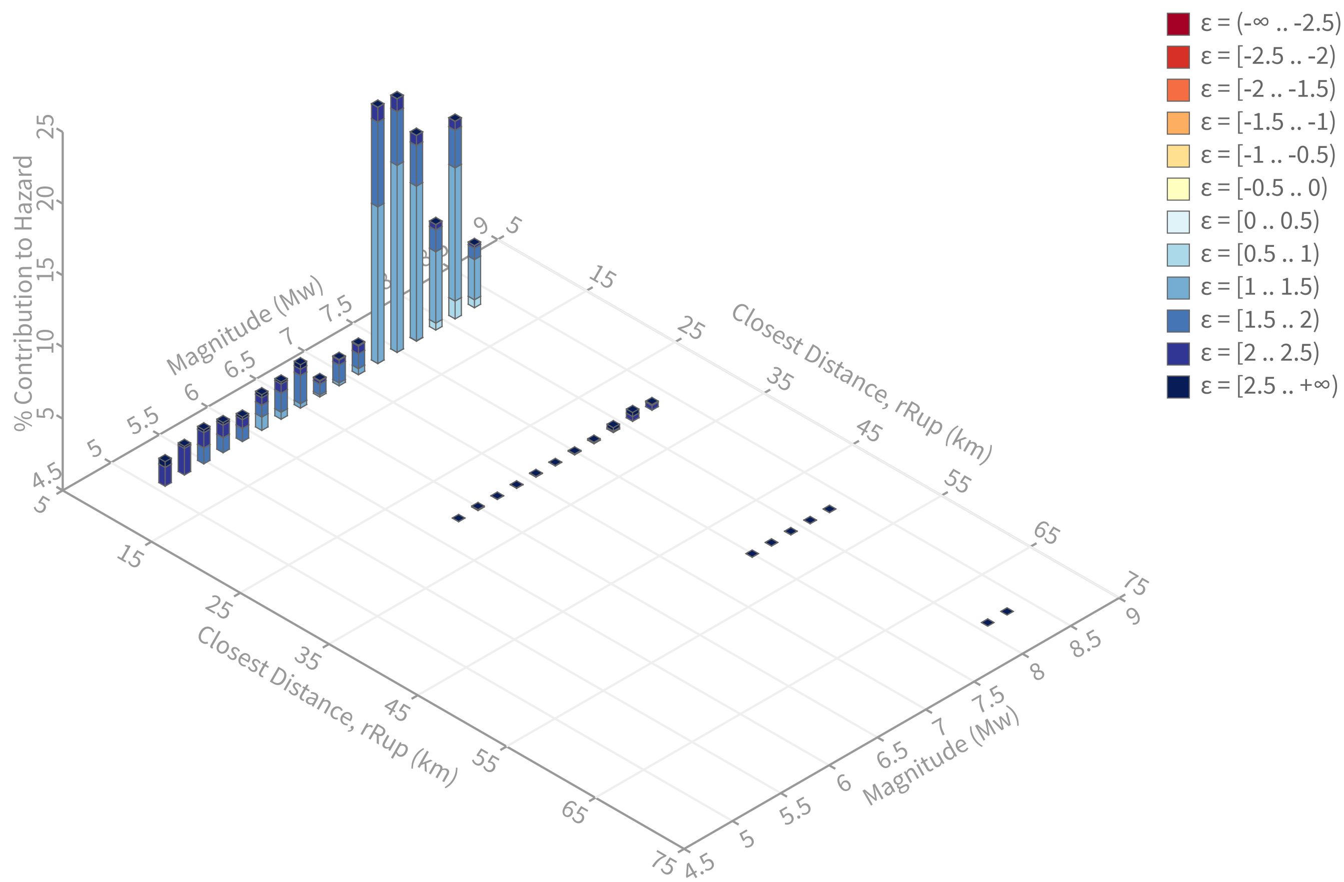
Please select “Edition”, “Location” & “Site Class” above to compute a hazard curve.

Compute Hazard Curve

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.95688095 g

Recovered targets

Return period: 3265.5791 yrs
Exceedance rate: 0.0003062244 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.07 %

Mean (over all sources)

m: 7.33
r: 6.95 km
ε_0: 1.56 σ

Mode (largest m-r bin)

m: 7.34
r: 6.39 km
ε_0: 1.55 σ
Contribution: 17.87 %

Mode (largest m-r-ε_0 bin)

m: 7.49
r: 5.9 km
ε_0: 1.35 σ
Contribution: 13.04 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							41.96
San Andreas (San Gorgonio Pass-Garnet HIll) [0]		5.85	7.59	1.44	116.310°W	33.824°N	29.23	33.15
San Andreas (North Branch Mill Creek) [11]		6.66	7.87	1.23	116.295°W	33.819°N	43.34	4.61
San Andreas (Coachella) rev [0]		8.75	7.19	1.83	116.246°W	33.788°N	83.72	1.91
UC33brAvg_FM32	System							41.88
San Andreas (San Gorgonio Pass-Garnet HIll) [0]		5.85	7.59	1.45	116.310°W	33.824°N	29.23	32.98
San Andreas (North Branch Mill Creek) [11]		6.66	7.84	1.23	116.295°W	33.819°N	43.34	4.88
San Andreas (Coachella) rev [0]		8.75	7.15	1.85	116.246°W	33.788°N	83.72	1.74
UC33brAvg_FM31 (opt)	Grid							8.08
PointSourceFinite: -116.340, 33.820		6.80	5.65	1.93	116.340°W	33.820°N	0.00	1.75
PointSourceFinite: -116.340, 33.820		6.80	5.65	1.93	116.340°W	33.820°N	0.00	1.74
PointSourceFinite: -116.340, 33.829		7.16	5.81	1.95	116.340°W	33.829°N	0.00	1.38
PointSourceFinite: -116.340, 33.829		7.16	5.81	1.95	116.340°W	33.829°N	0.00	1.38
UC33brAvg_FM32 (opt)	Grid							8.08
PointSourceFinite: -116.340, 33.820		6.80	5.65	1.93	116.340°W	33.820°N	0.00	1.75
PointSourceFinite: -116.340, 33.820		6.80	5.65	1.93	116.340°W	33.820°N	0.00	1.74
PointSourceFinite: -116.340, 33.829		7.16	5.81	1.95	116.340°W	33.829°N	0.00	1.38
PointSourceFinite: -116.340, 33.829		7.16	5.81	1.95	116.340°W	33.829°N	0.00	1.38

APPENDIX D

SEISMIC SETTLEMENT

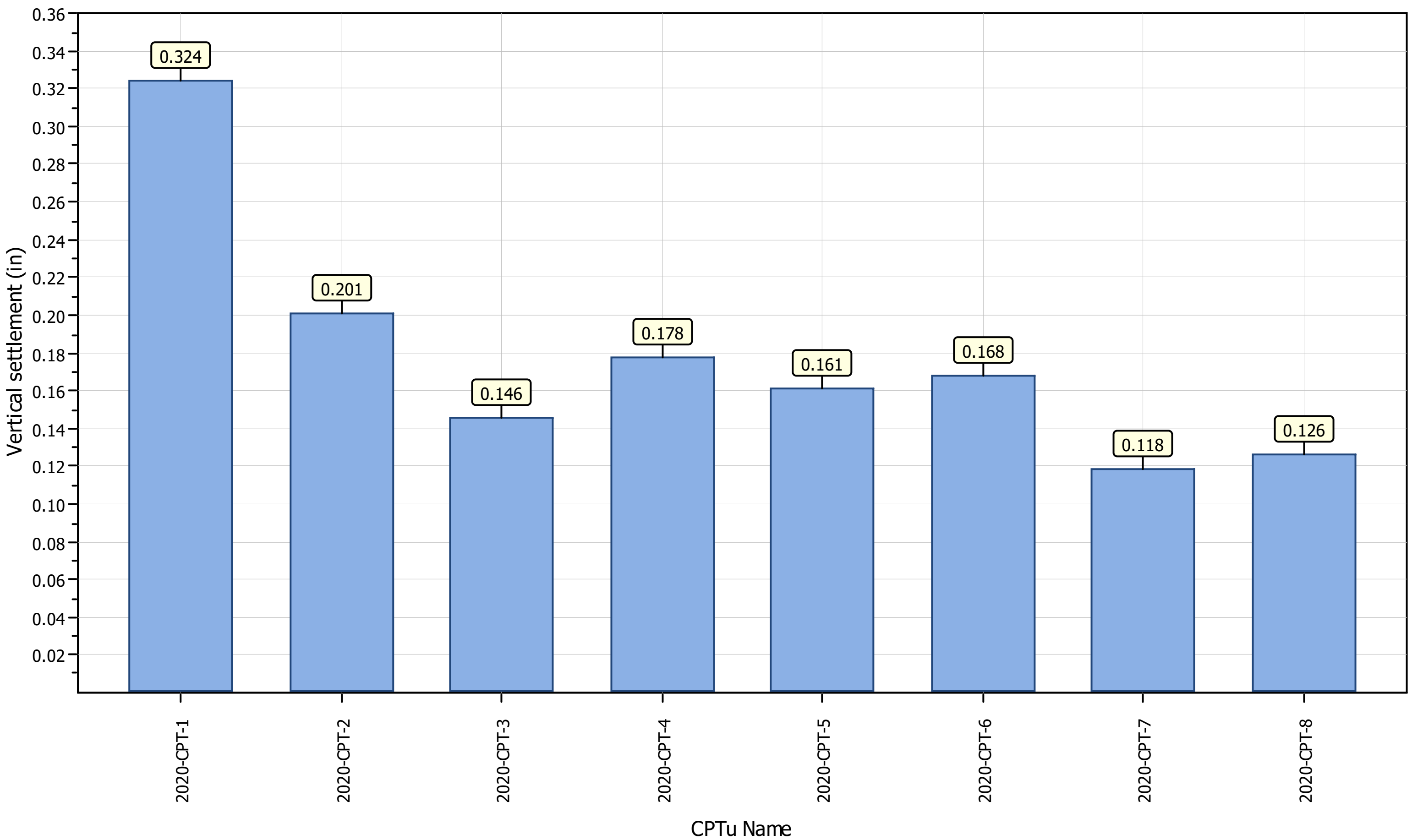
Leighton

Leighton Consulting, Inc.
17781 Cowan
Irvine, CA 92614
http://www.leightongeo.com

Project title : Coachella Valley Arena

Location : Varner Road & Cook Street, Palm Desert, CA

Overall vertical settlements report



Leighton Consulting, Inc.
17781 Cowan
Irvine, CA 92614
http://www.leightongeo.com

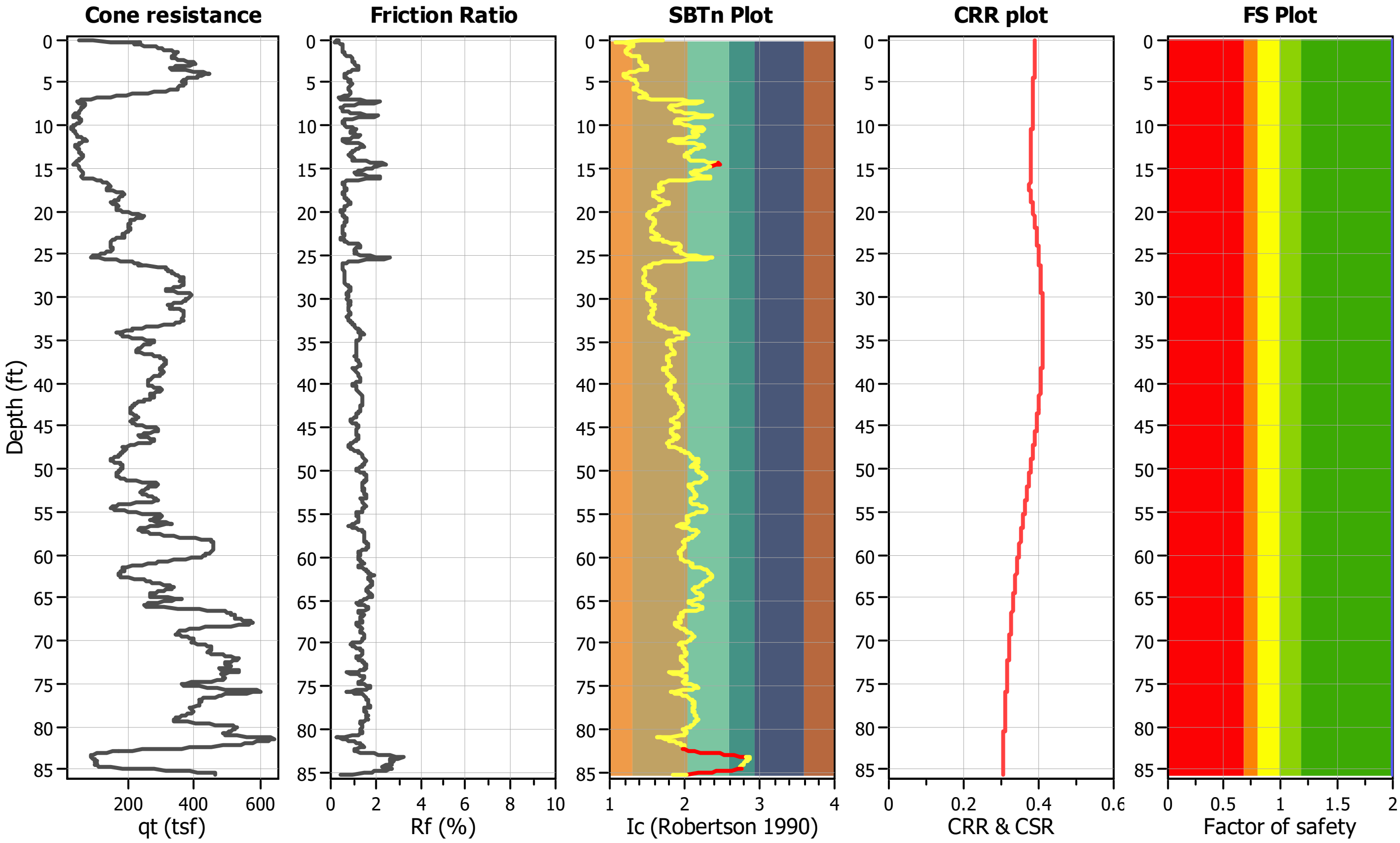
LIQUEFACTION ANALYSIS REPORT

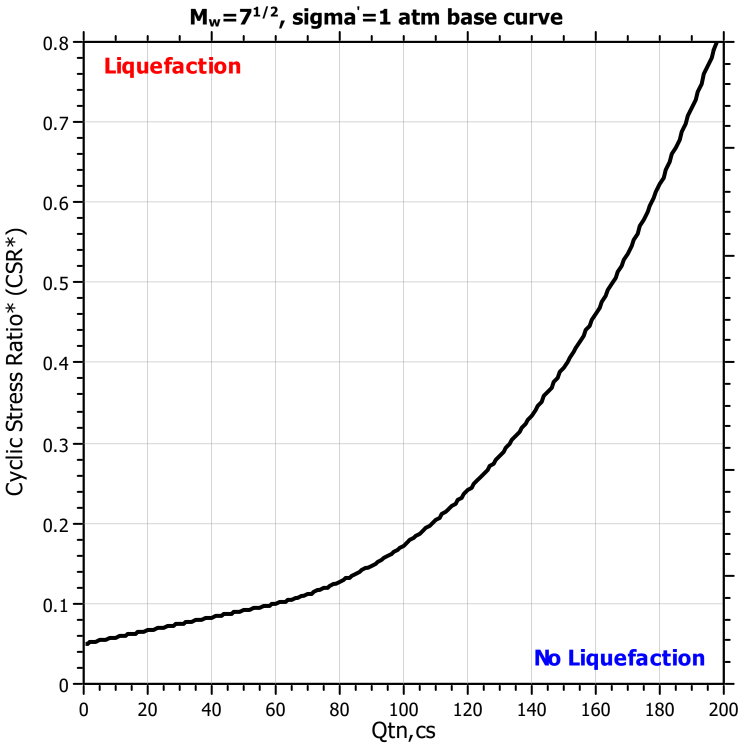
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

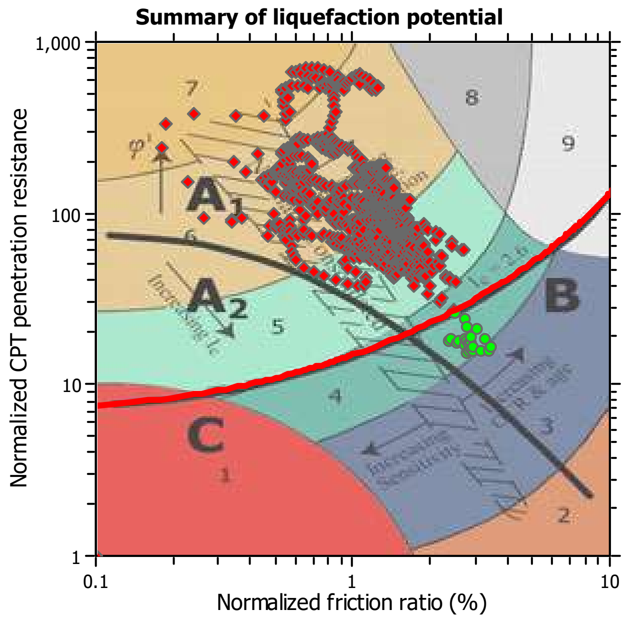
CPT file : 2020-CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

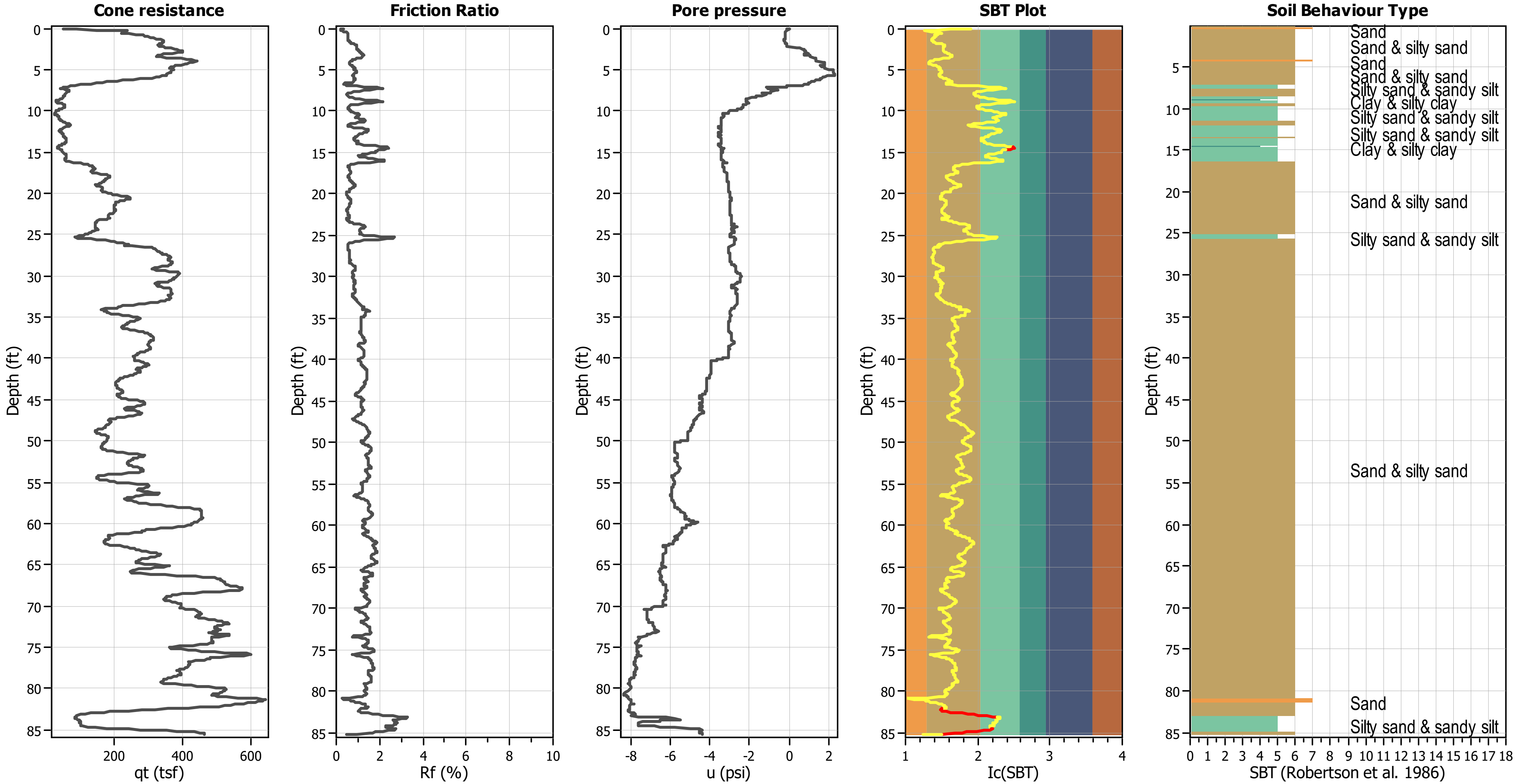






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



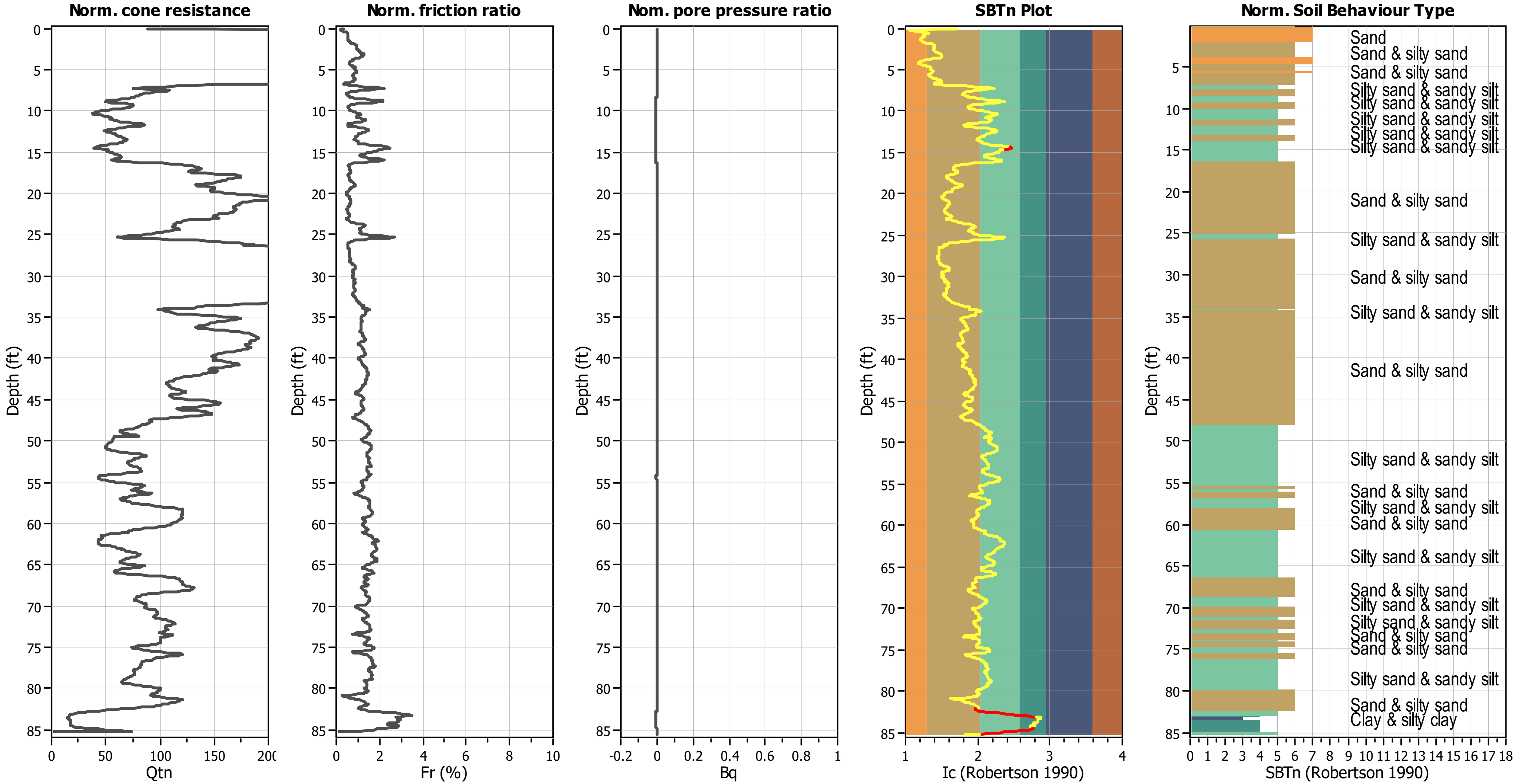
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



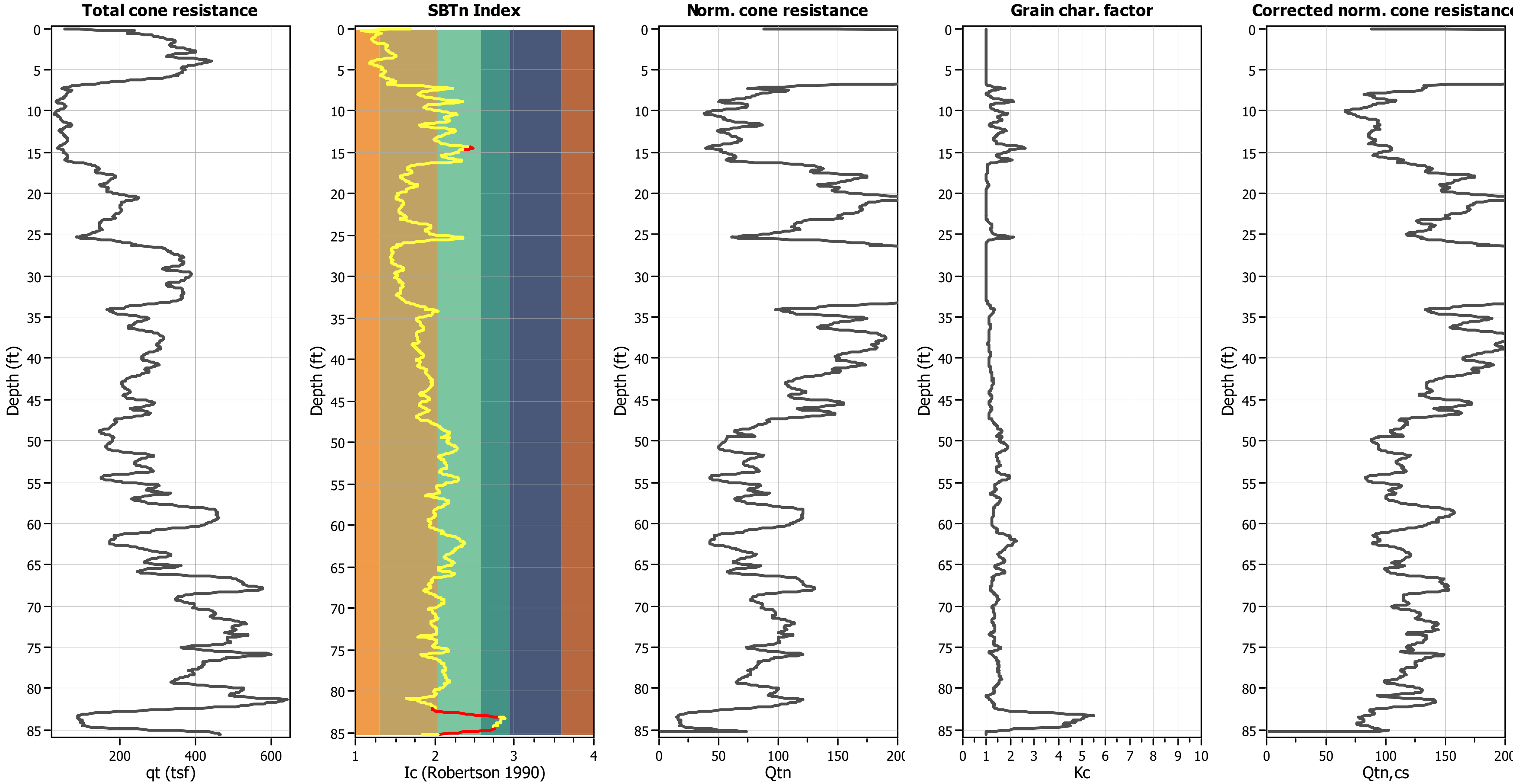
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

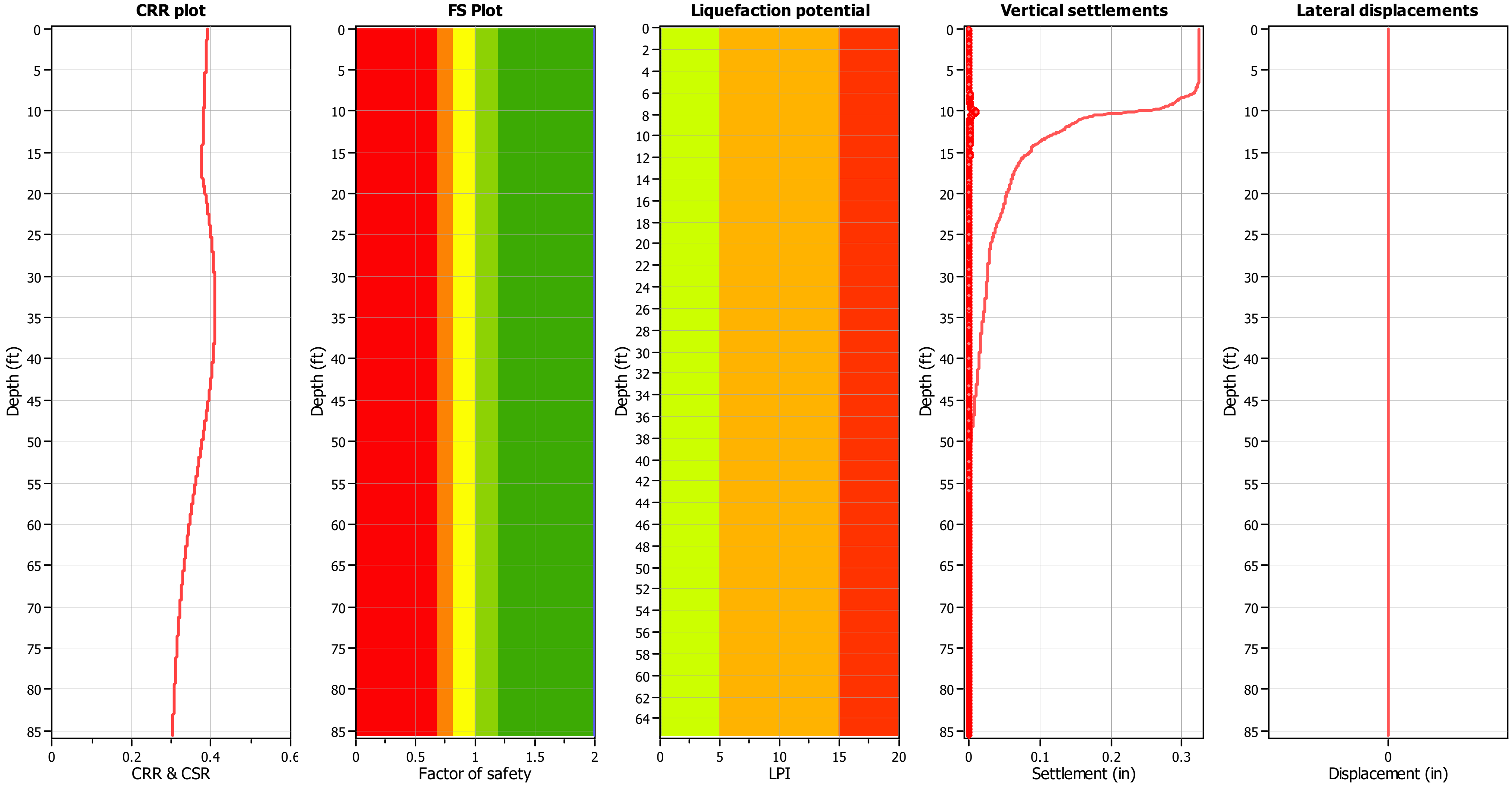
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

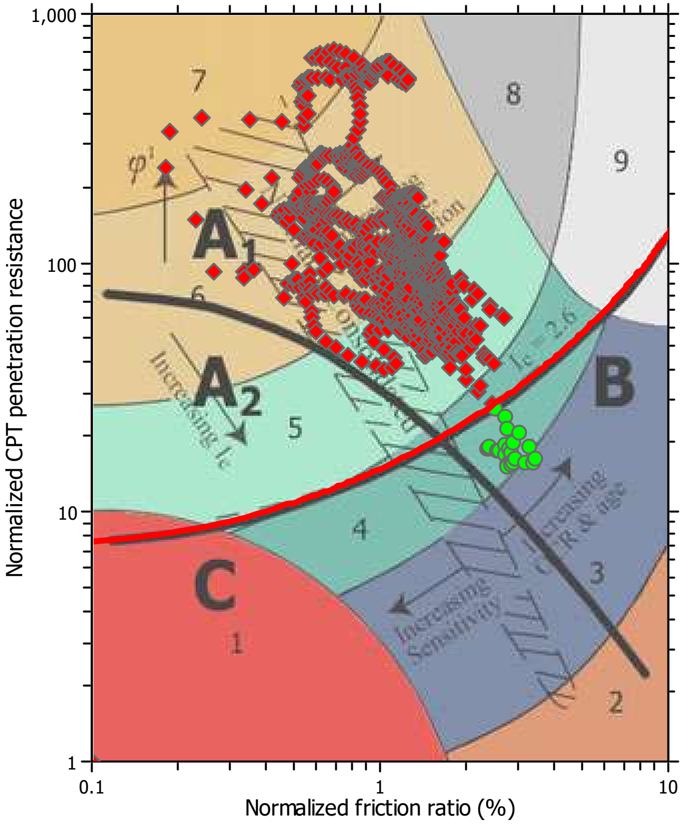
F.S. color scheme

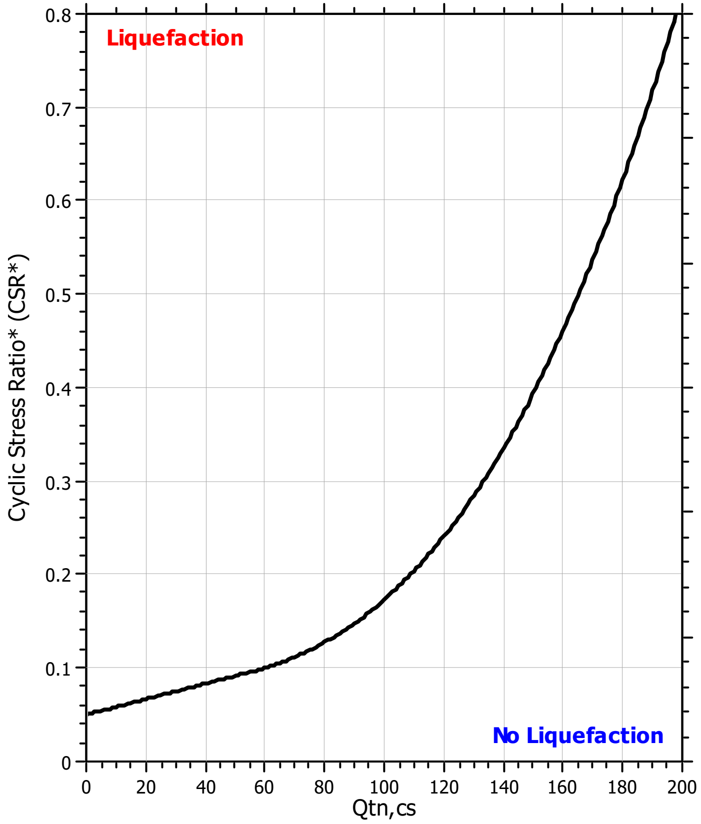
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

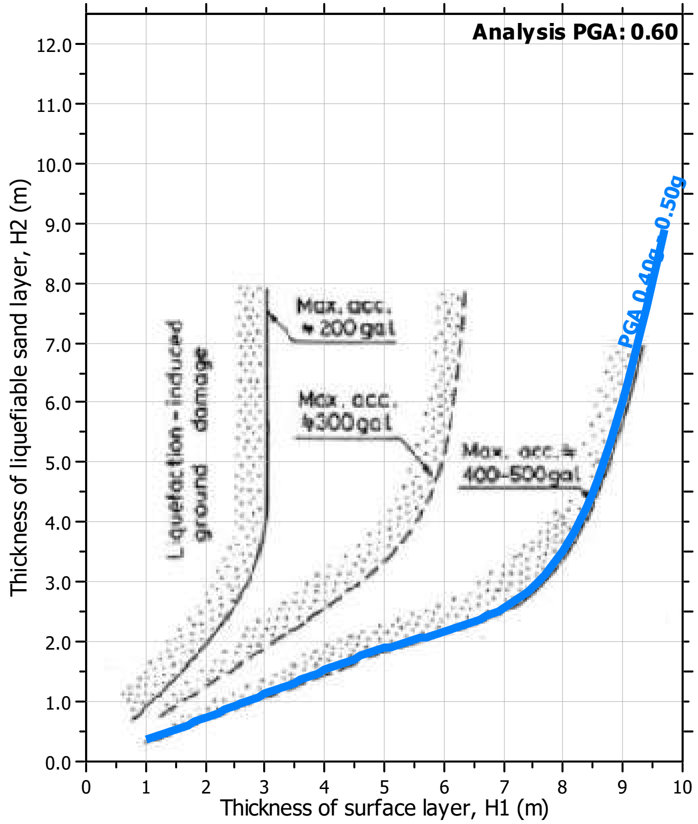
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



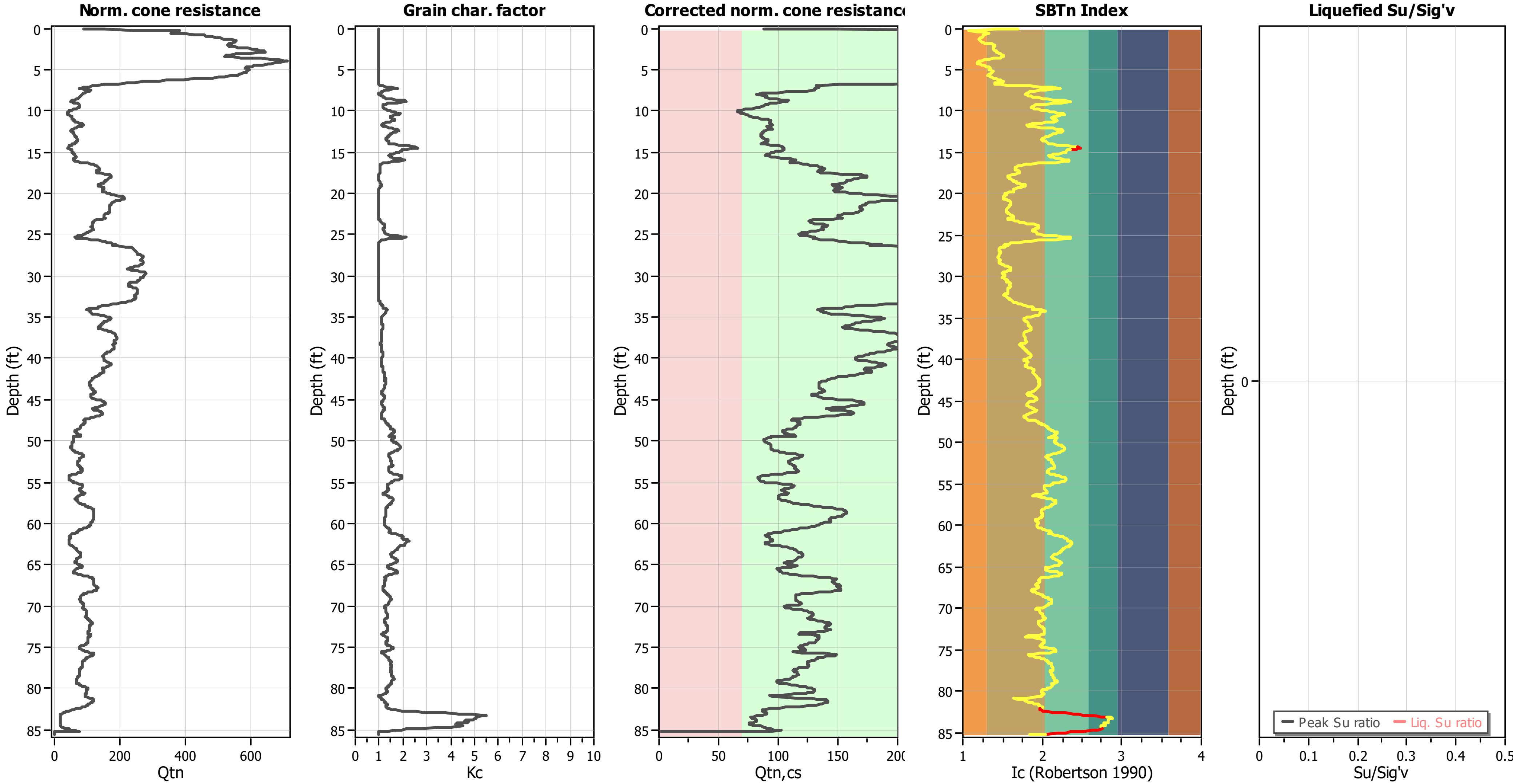




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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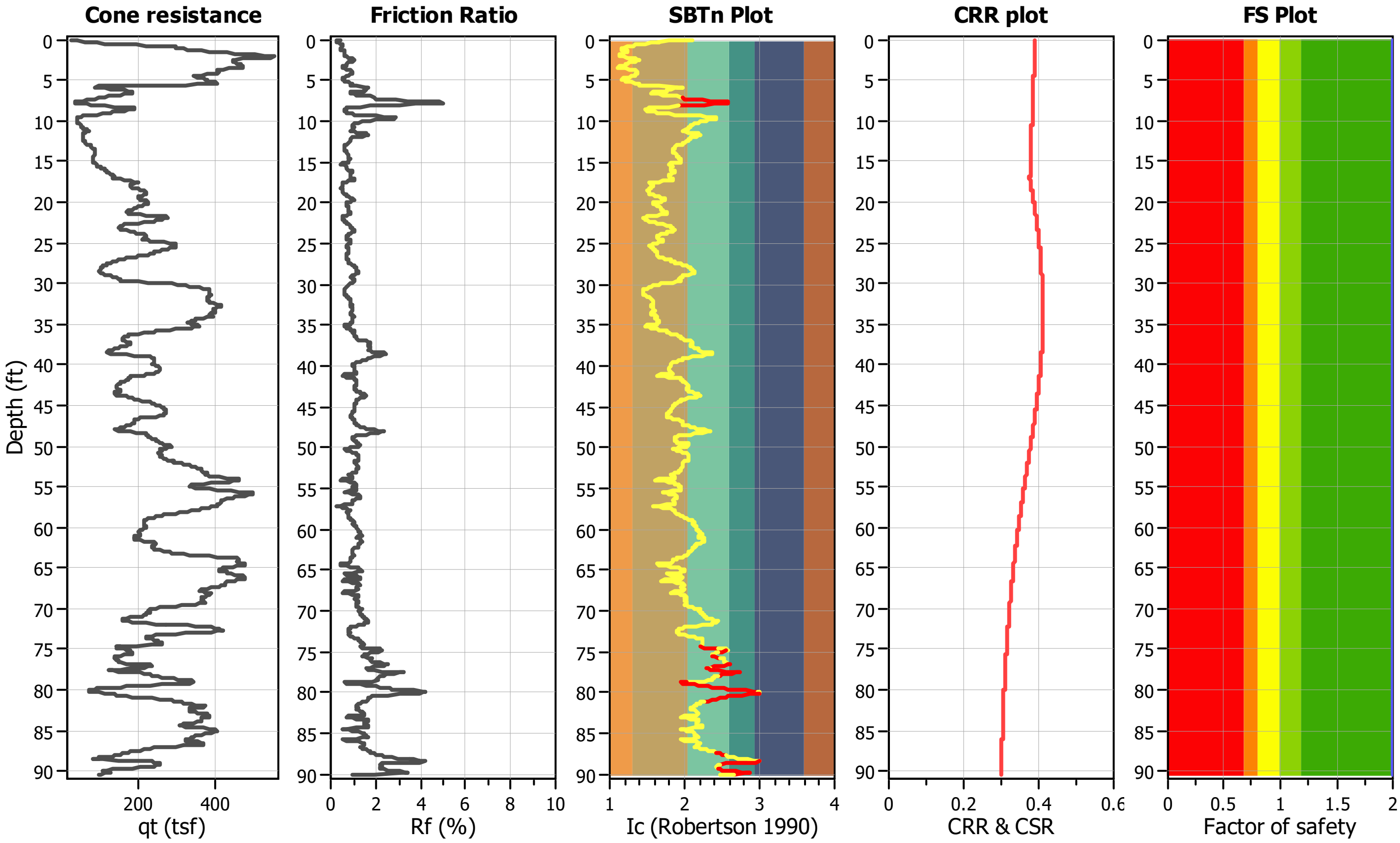
LIQUEFACTION ANALYSIS REPORT

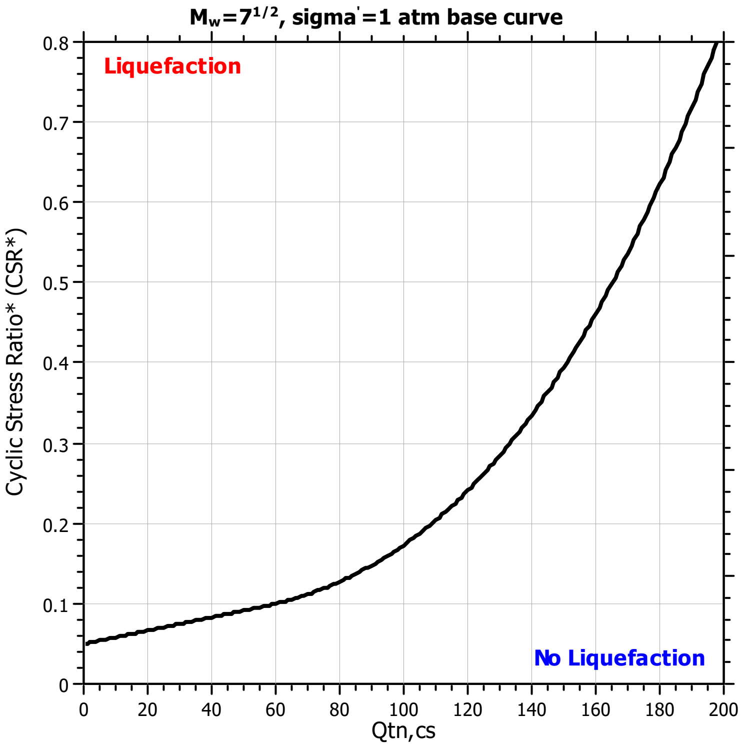
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

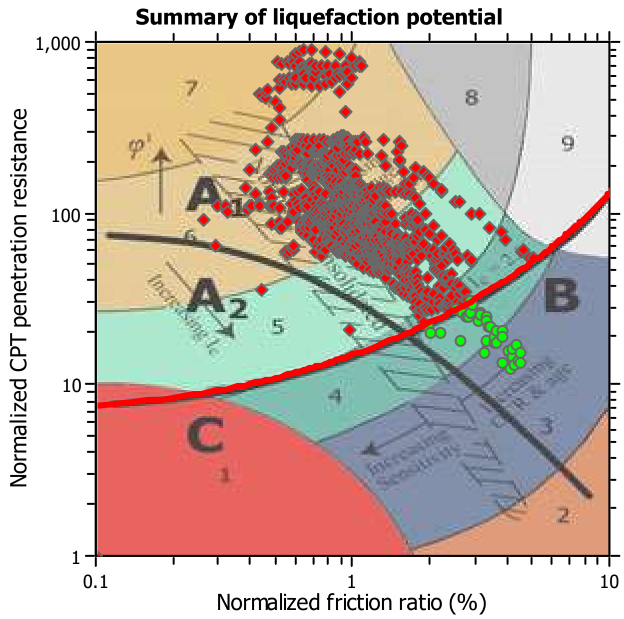
CPT file : 2020-CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

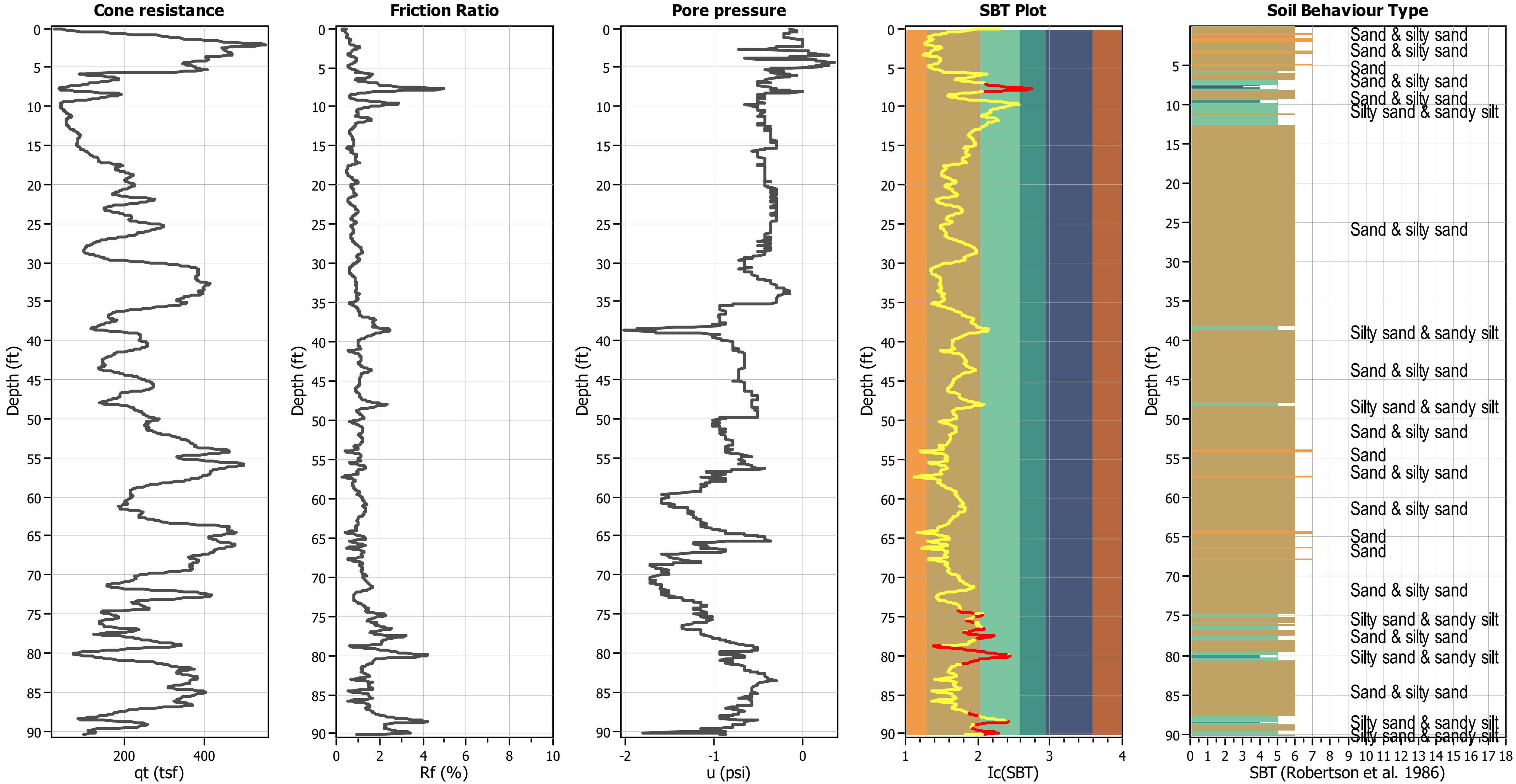






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



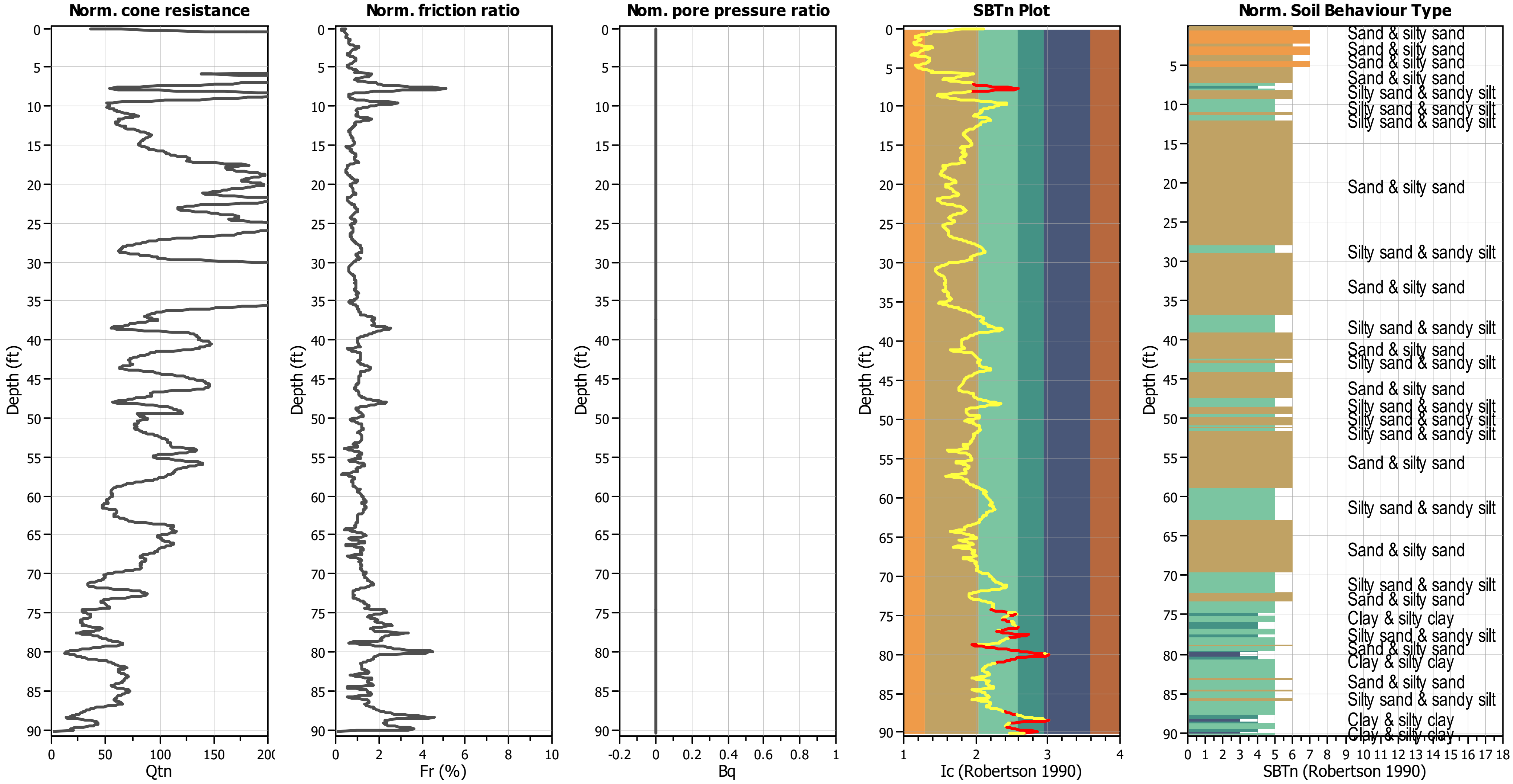
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



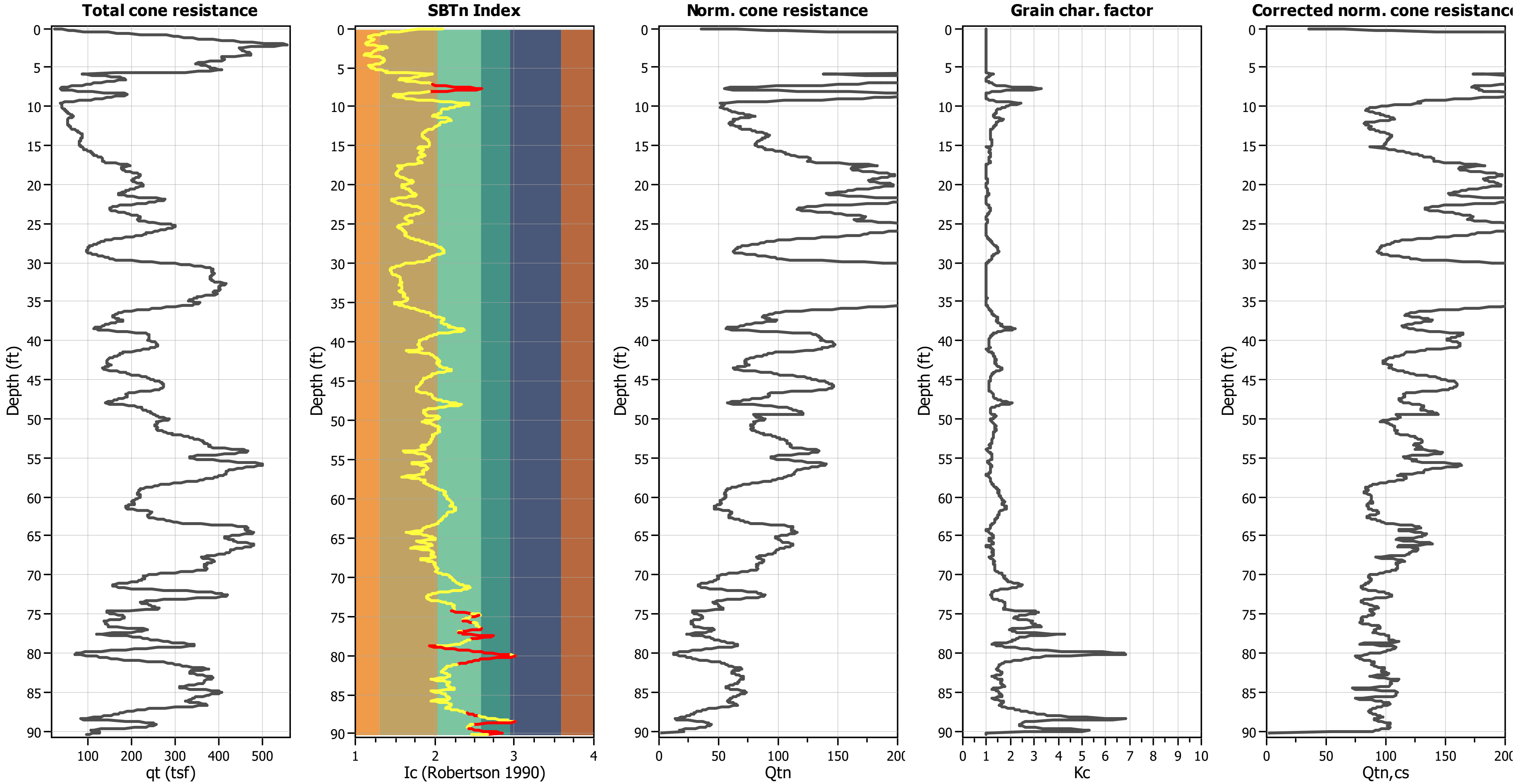
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

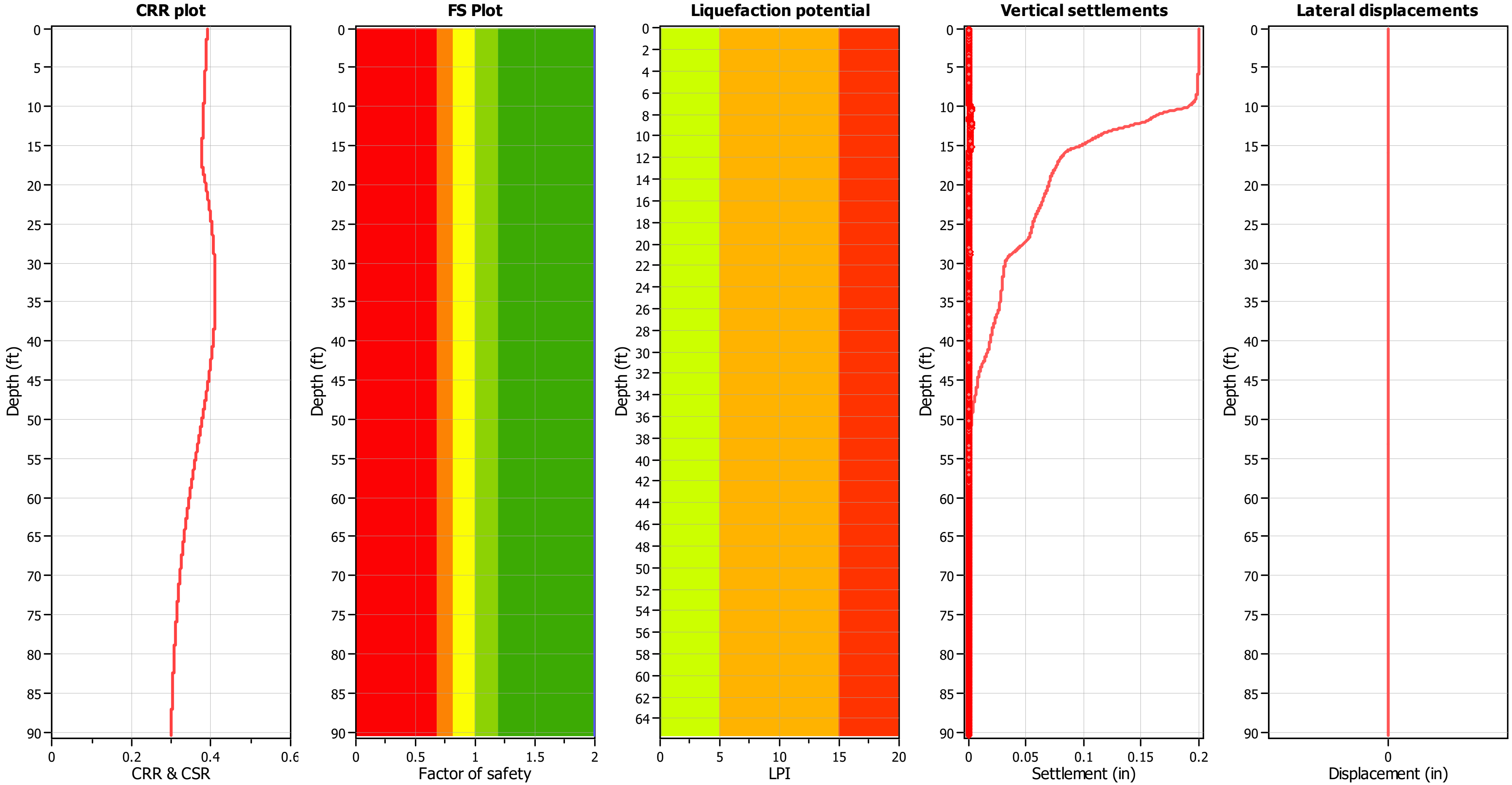
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

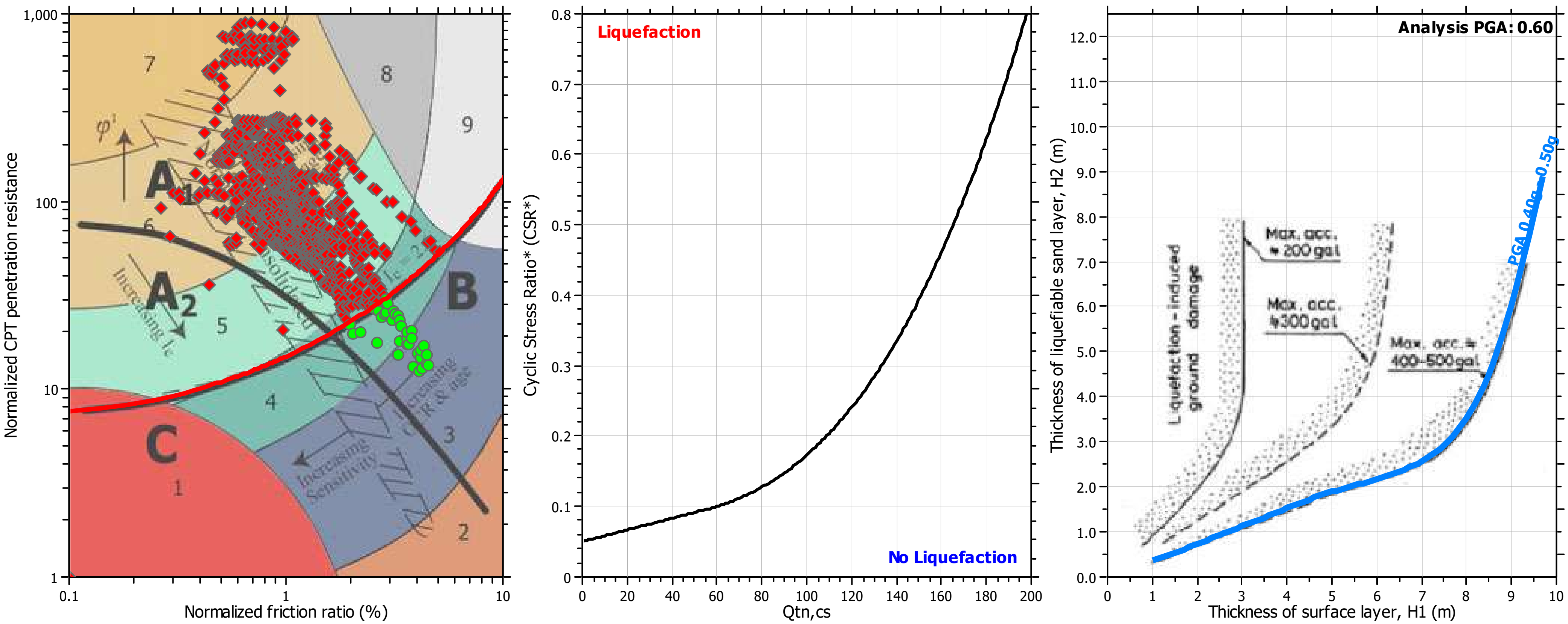
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

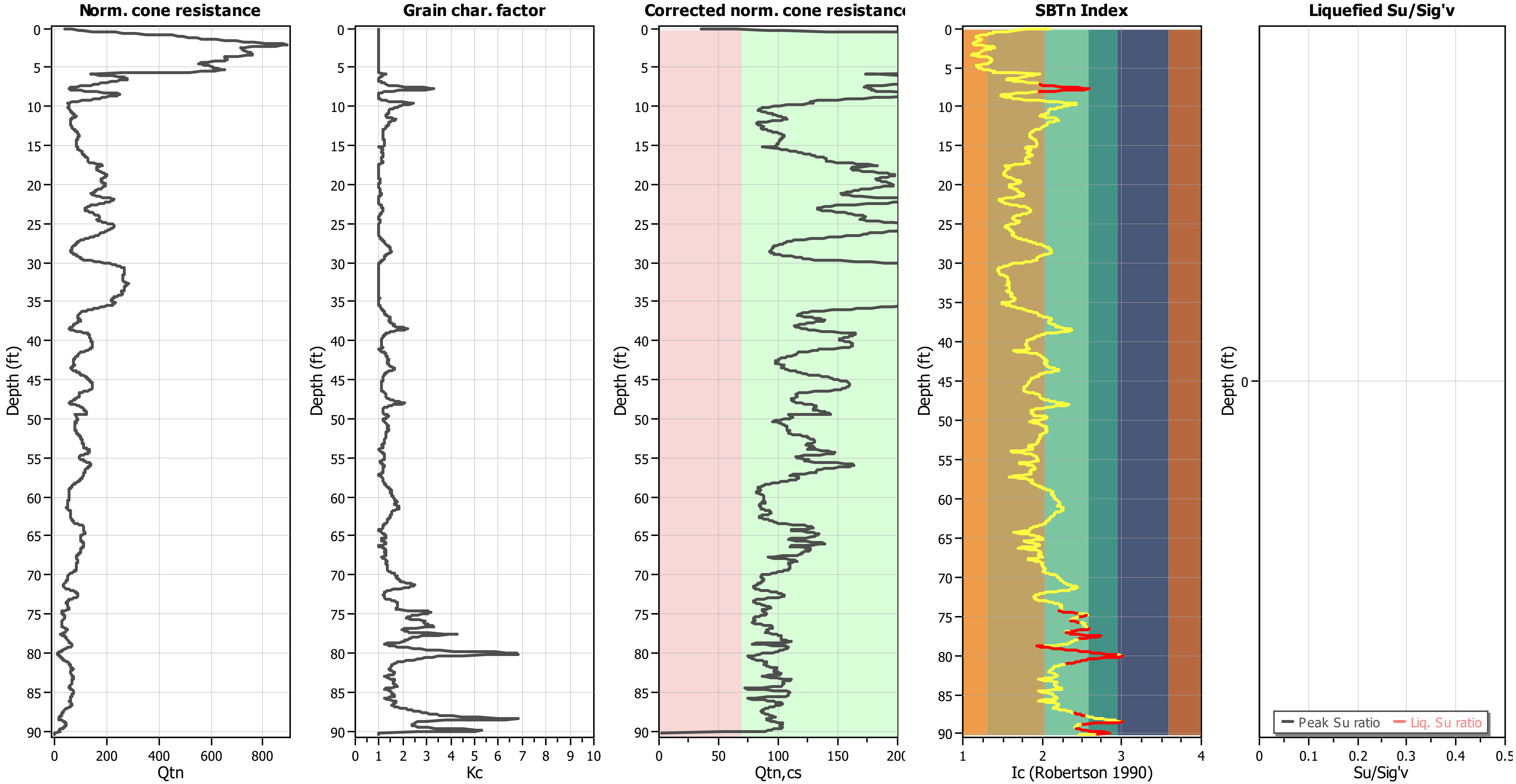
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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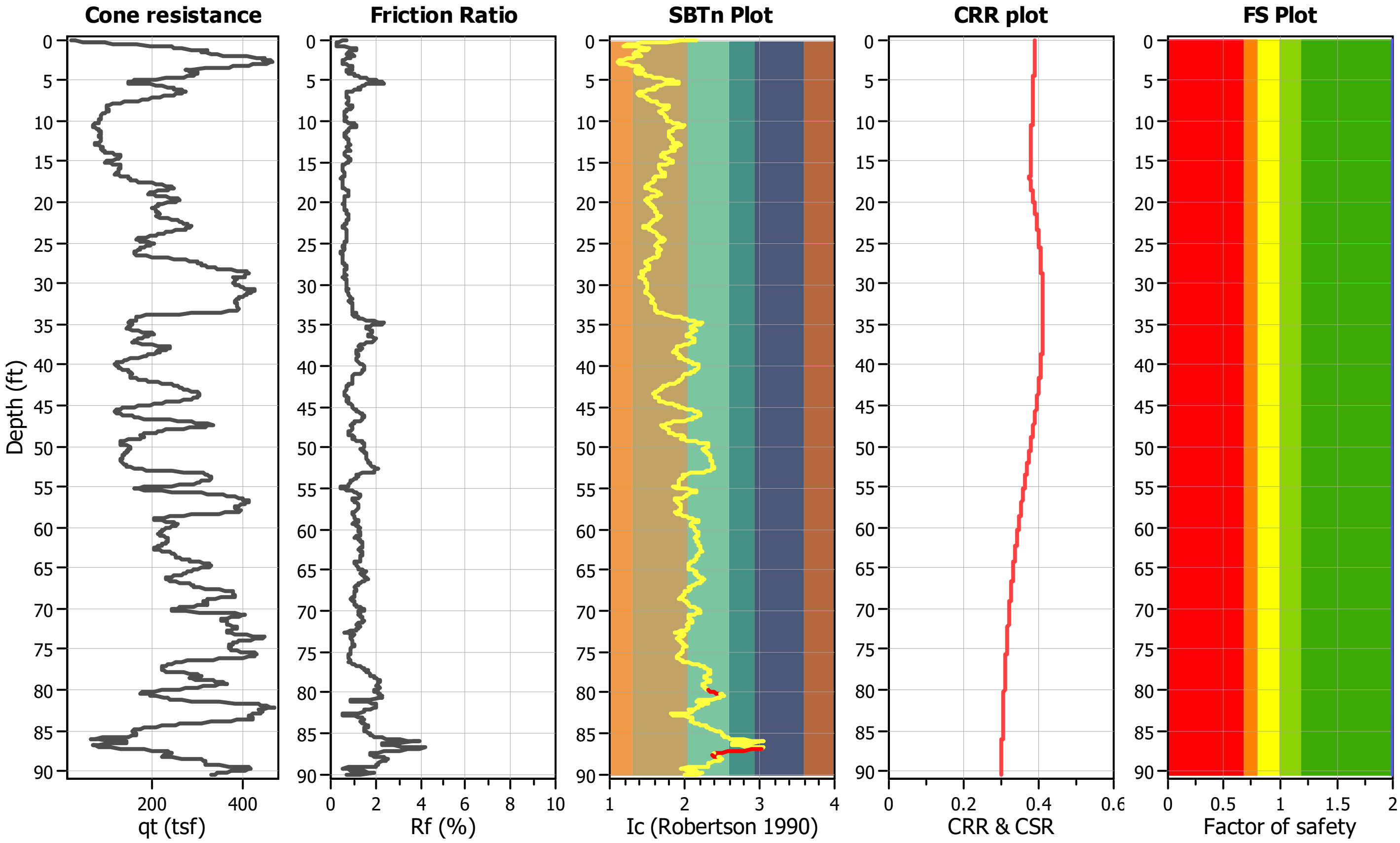
LIQUEFACTION ANALYSIS REPORT

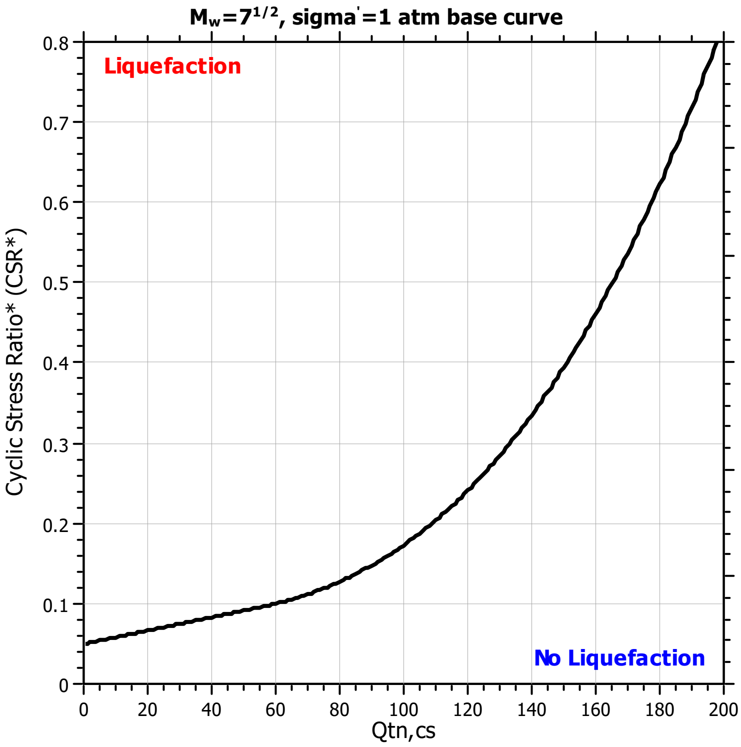
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

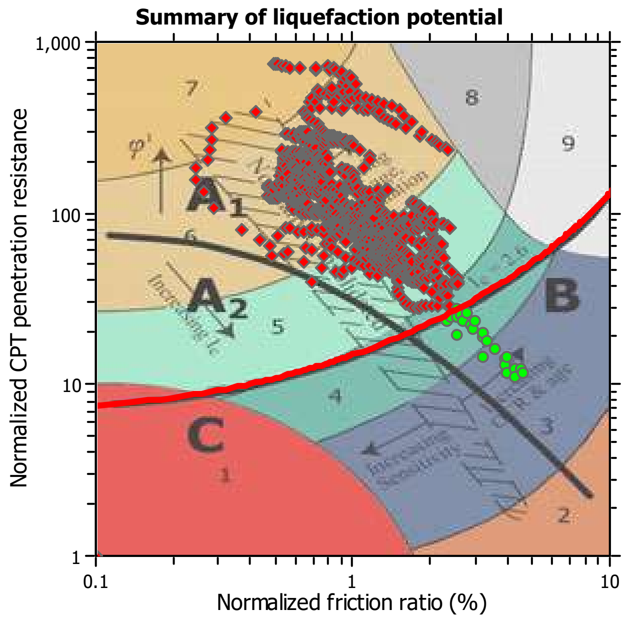
CPT file : 2020-CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

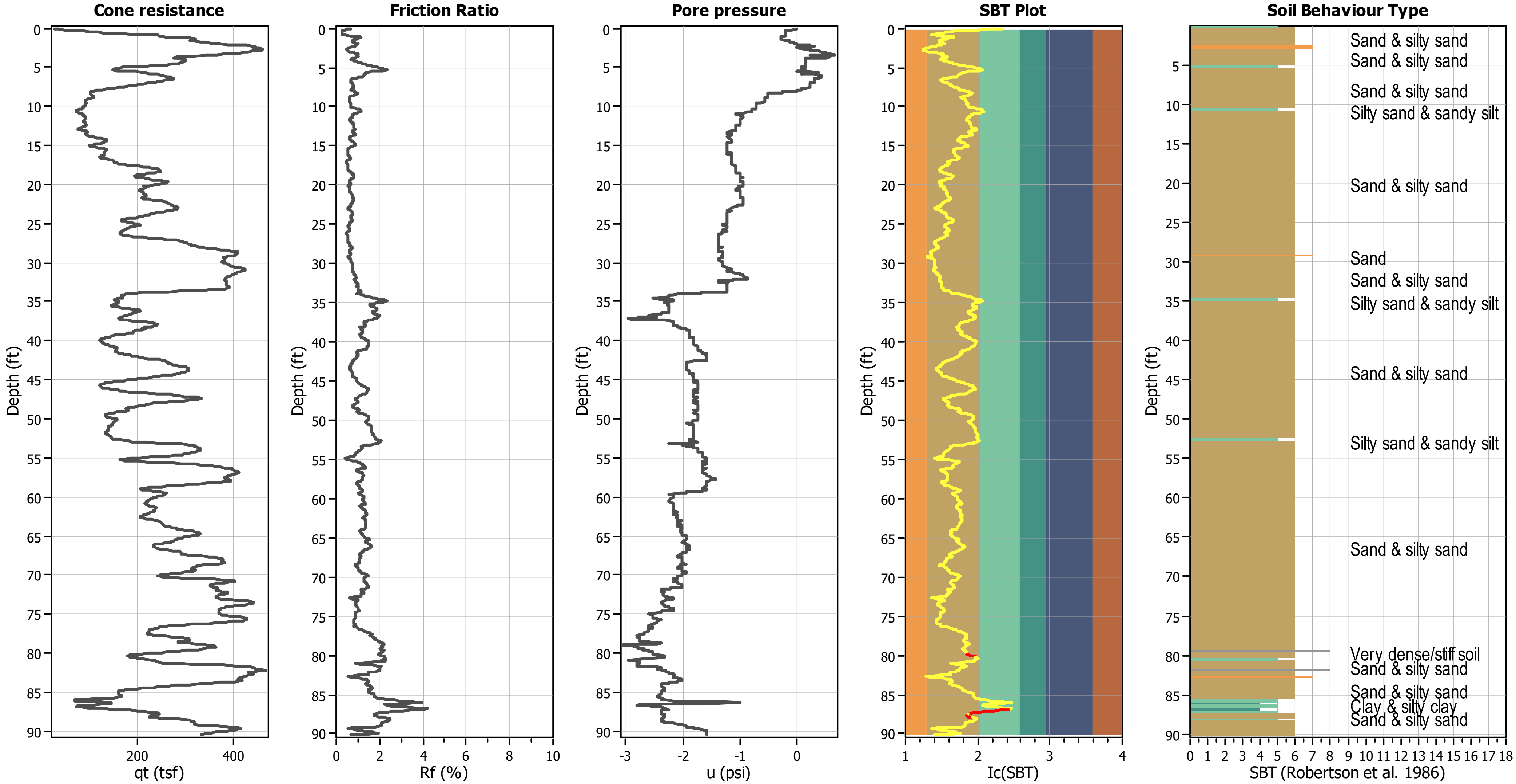






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



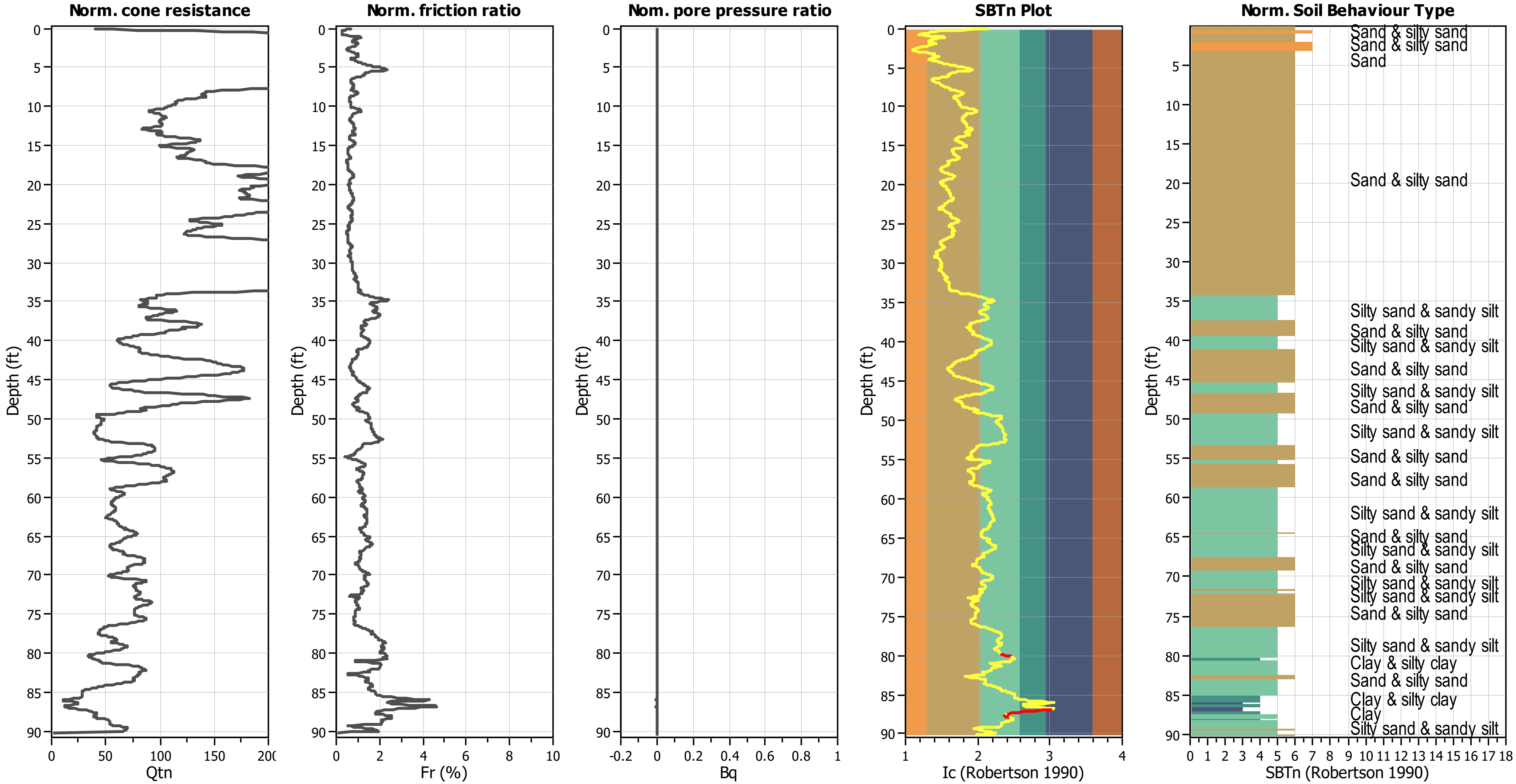
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



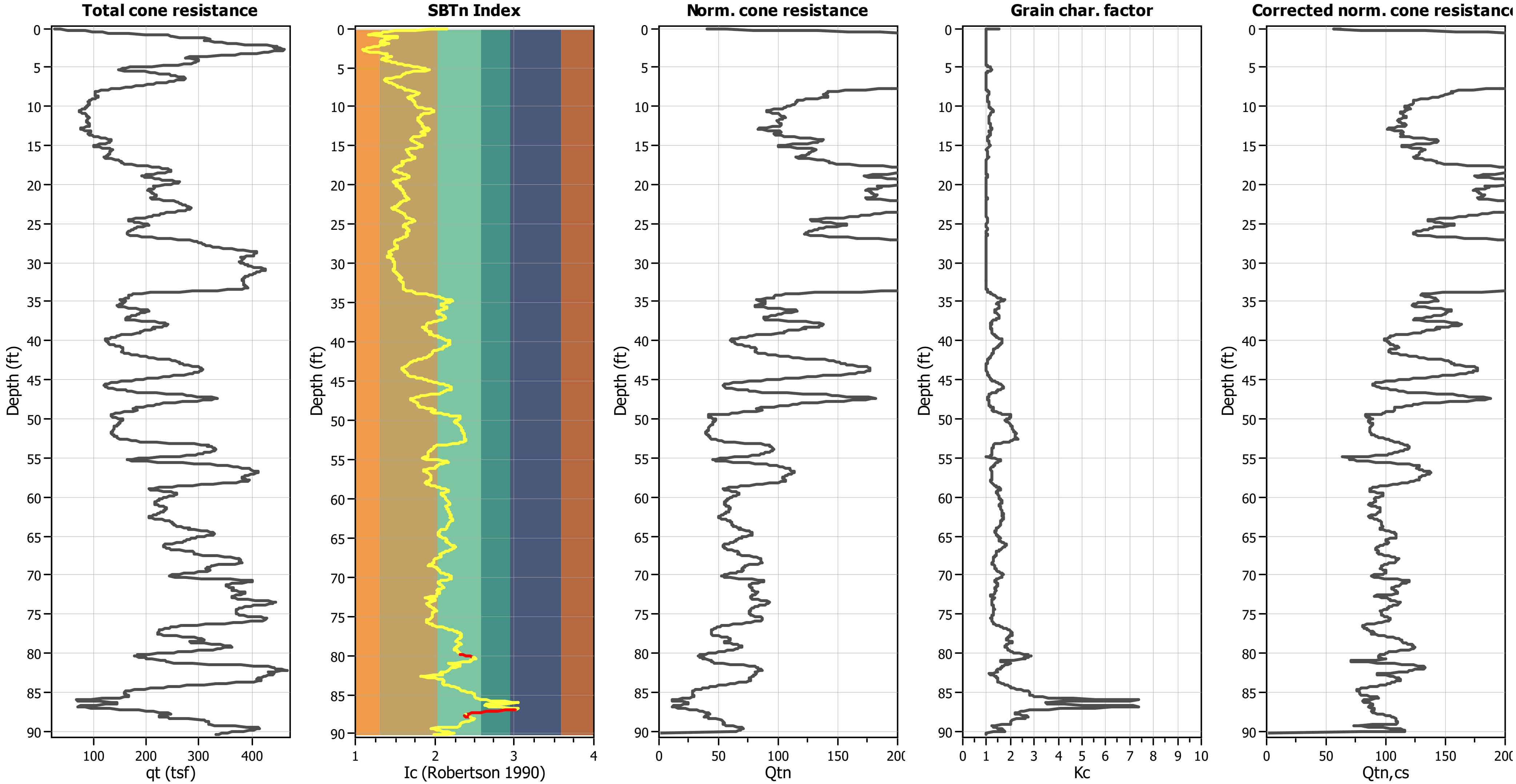
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

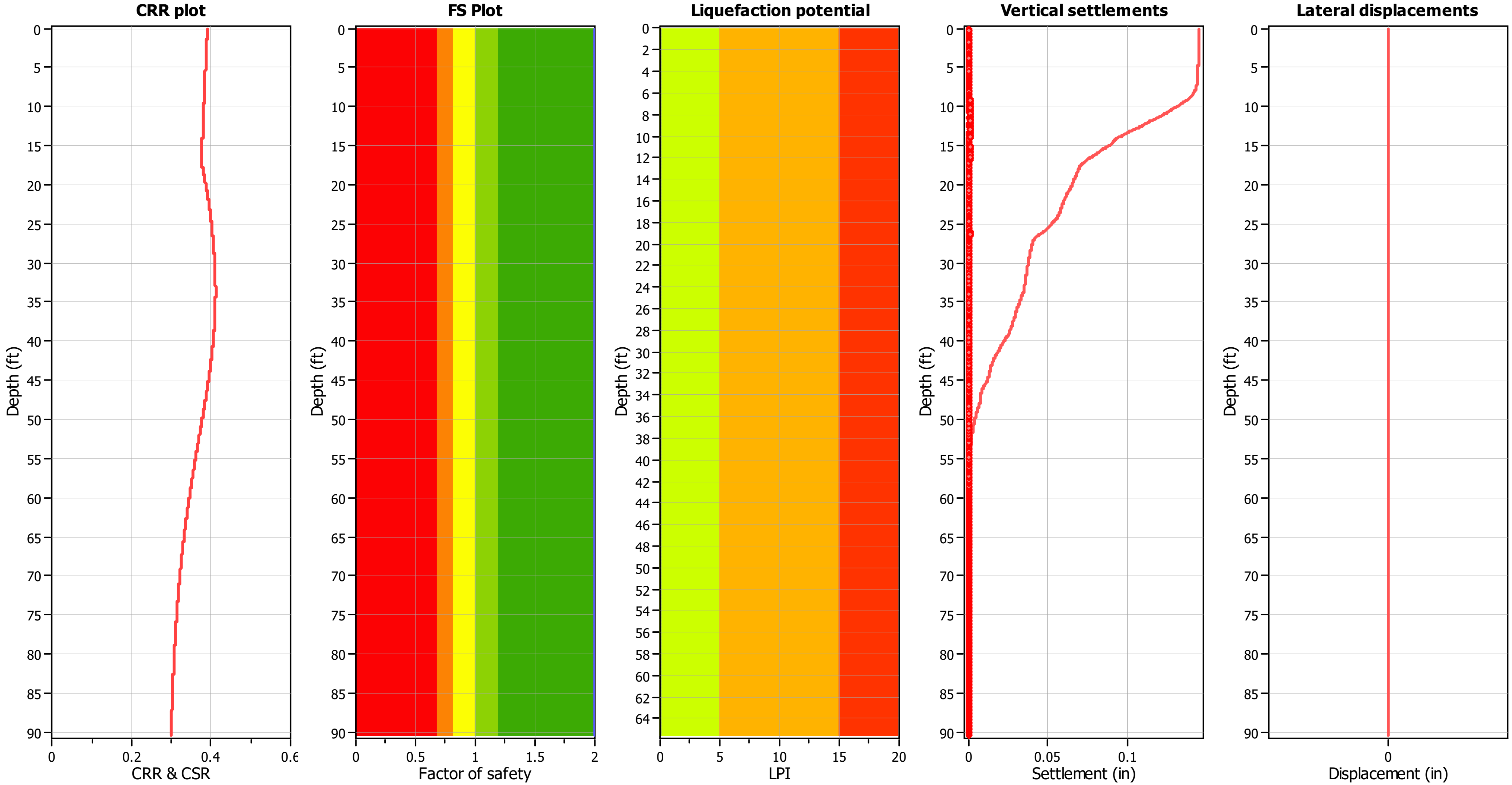
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

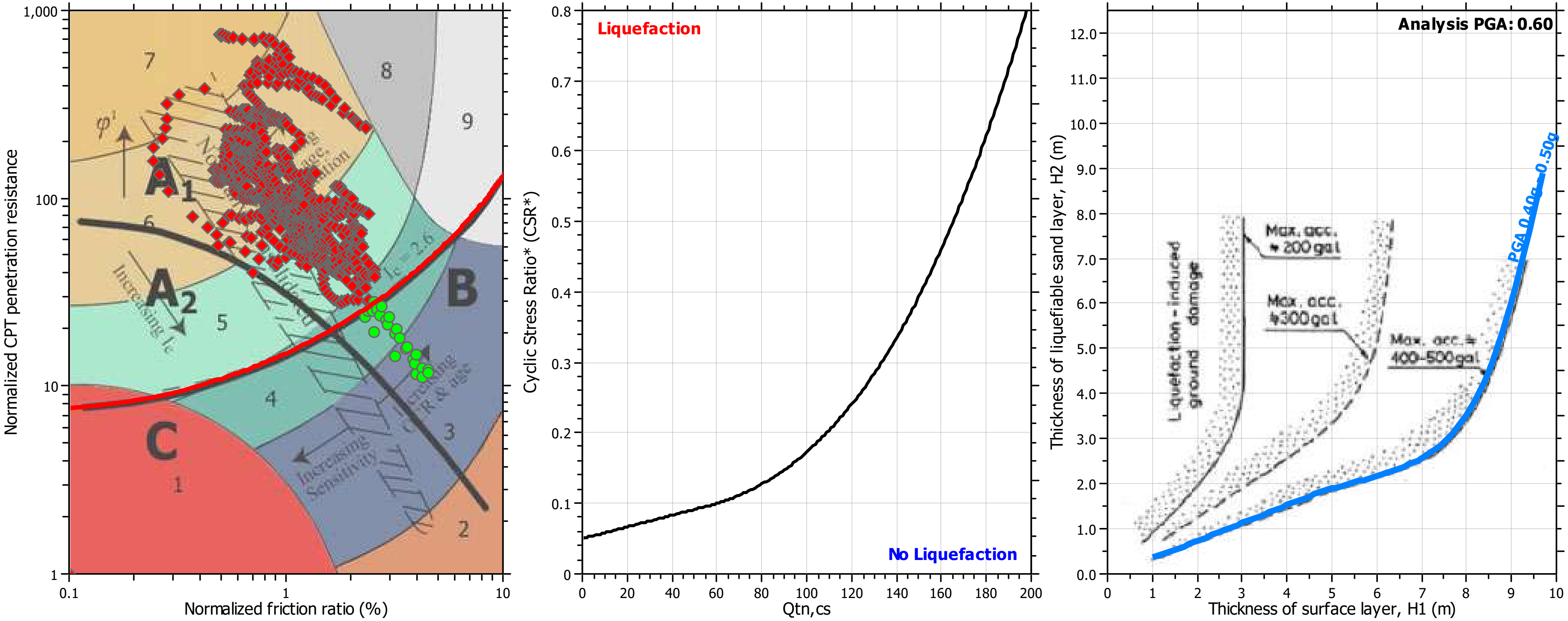
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

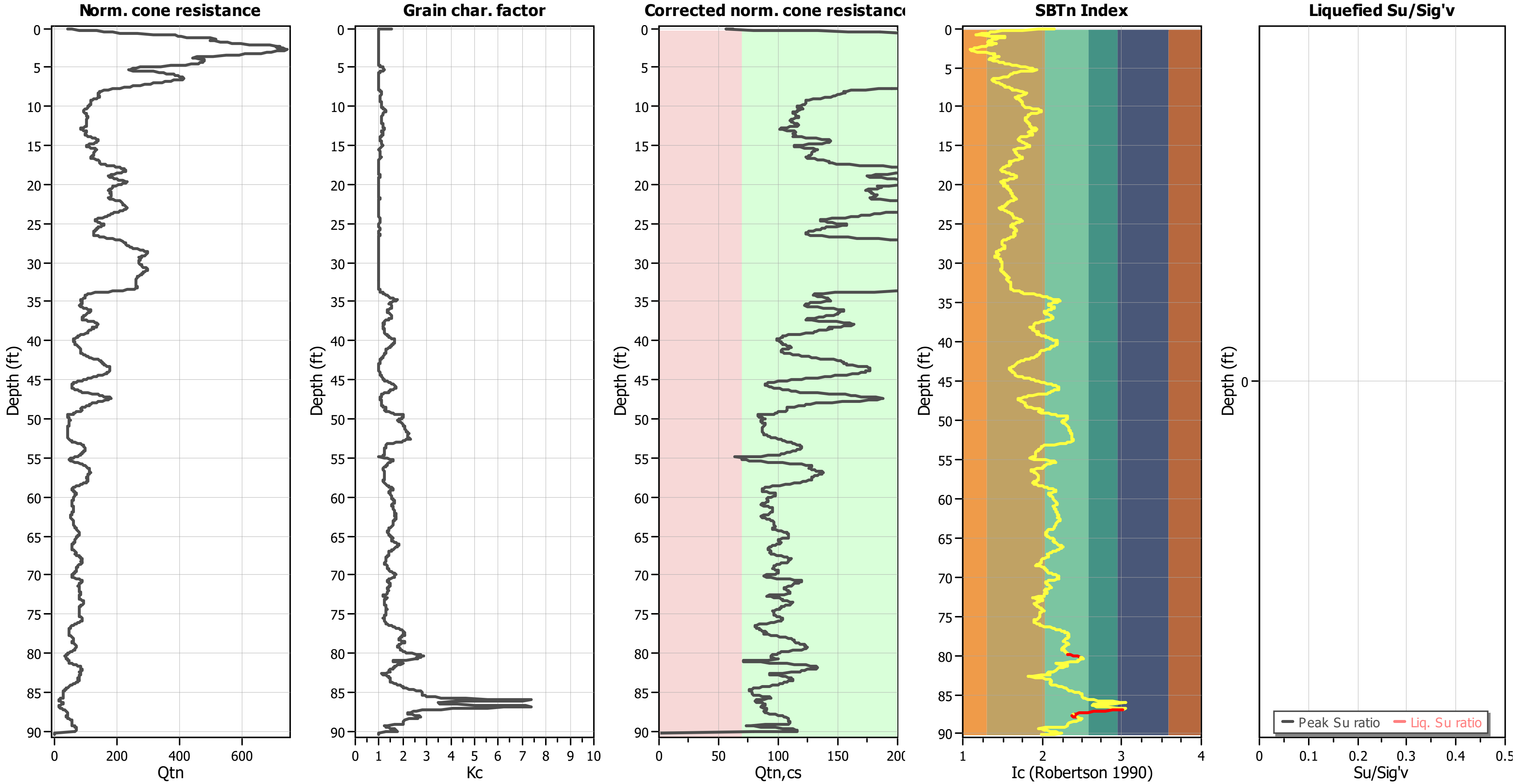
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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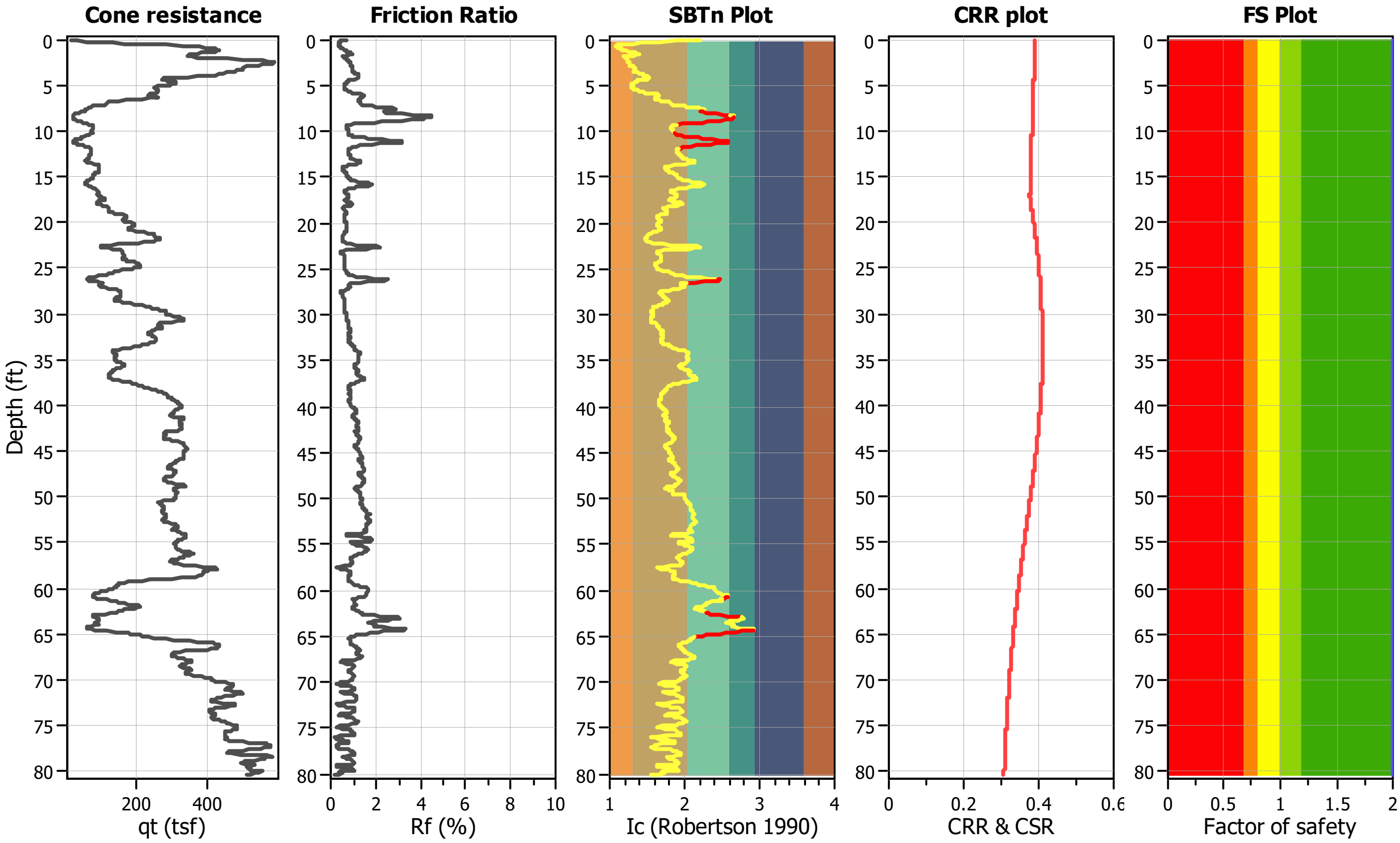
LIQUEFACTION ANALYSIS REPORT

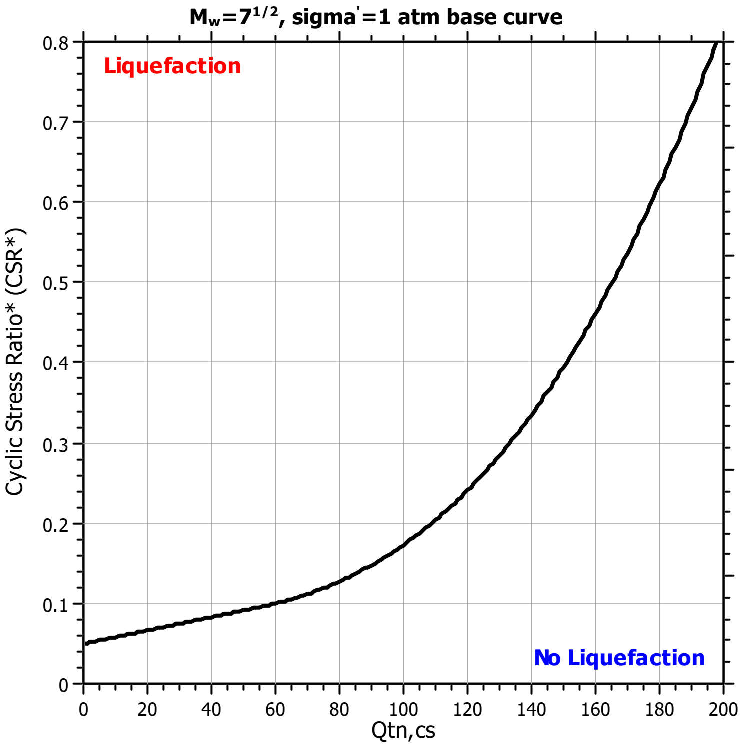
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

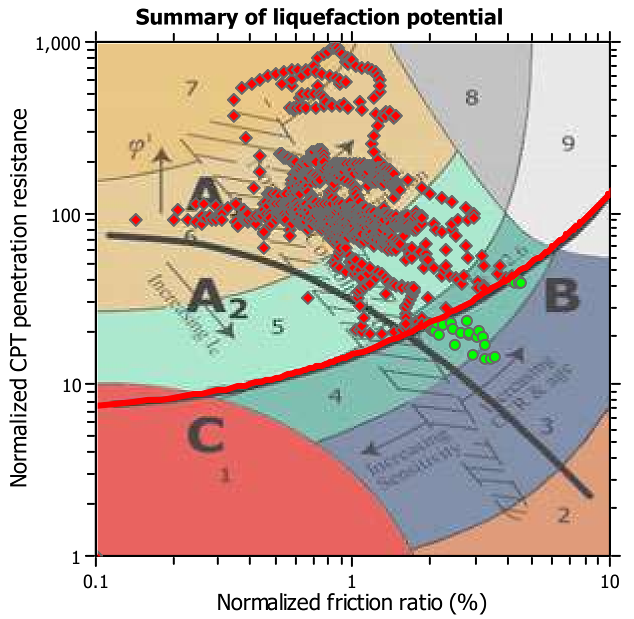
CPT file : 2020-CPT-4

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

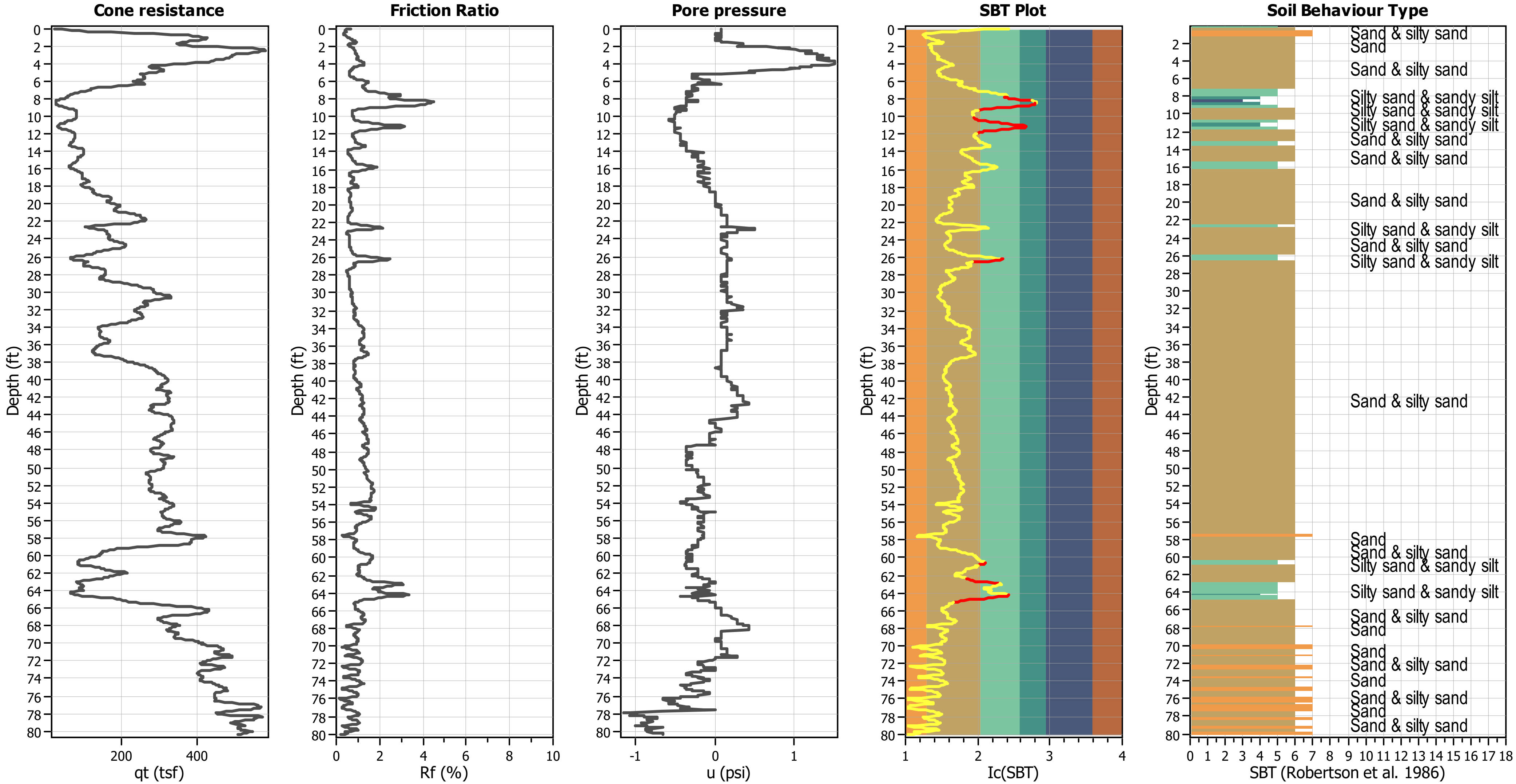






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



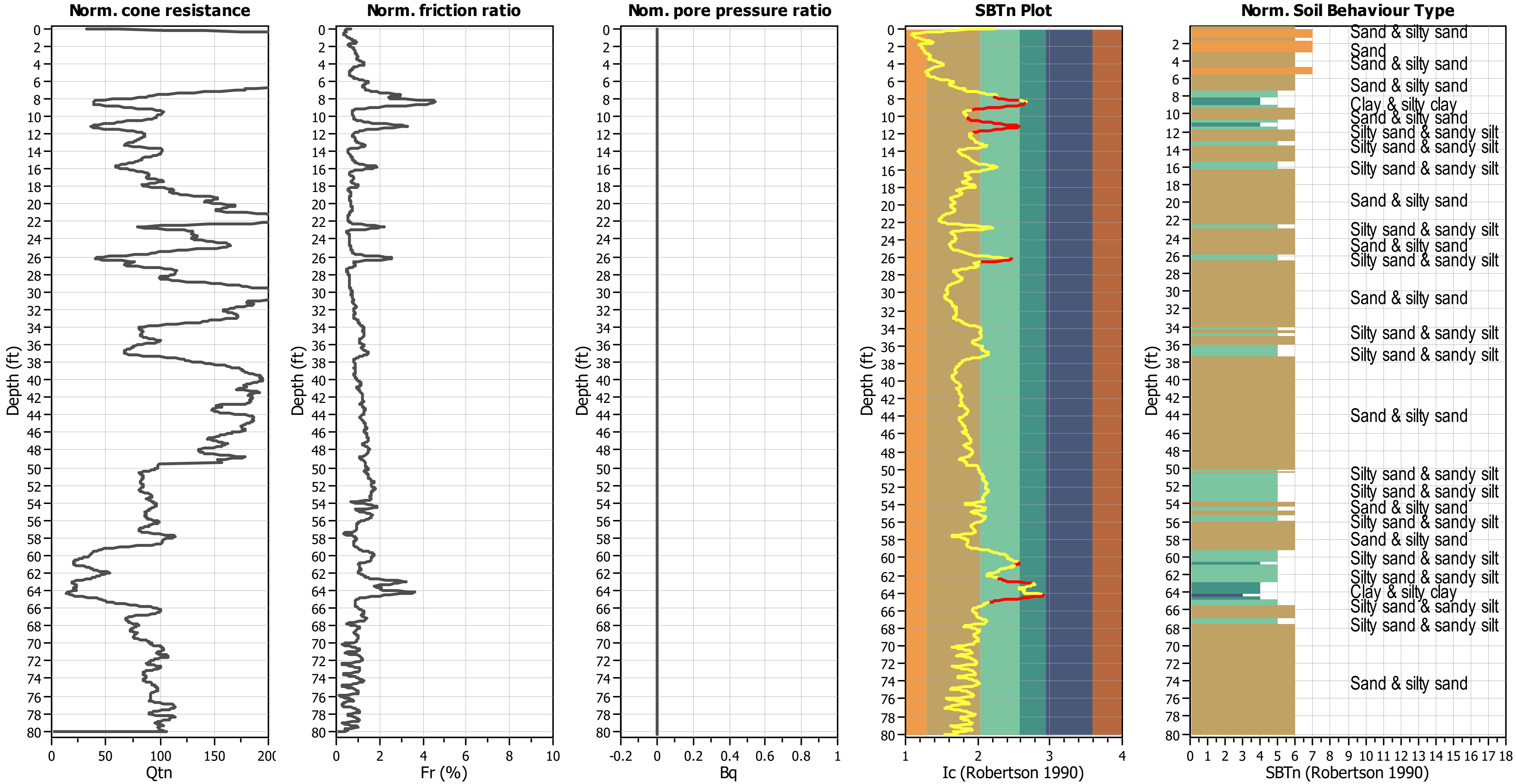
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



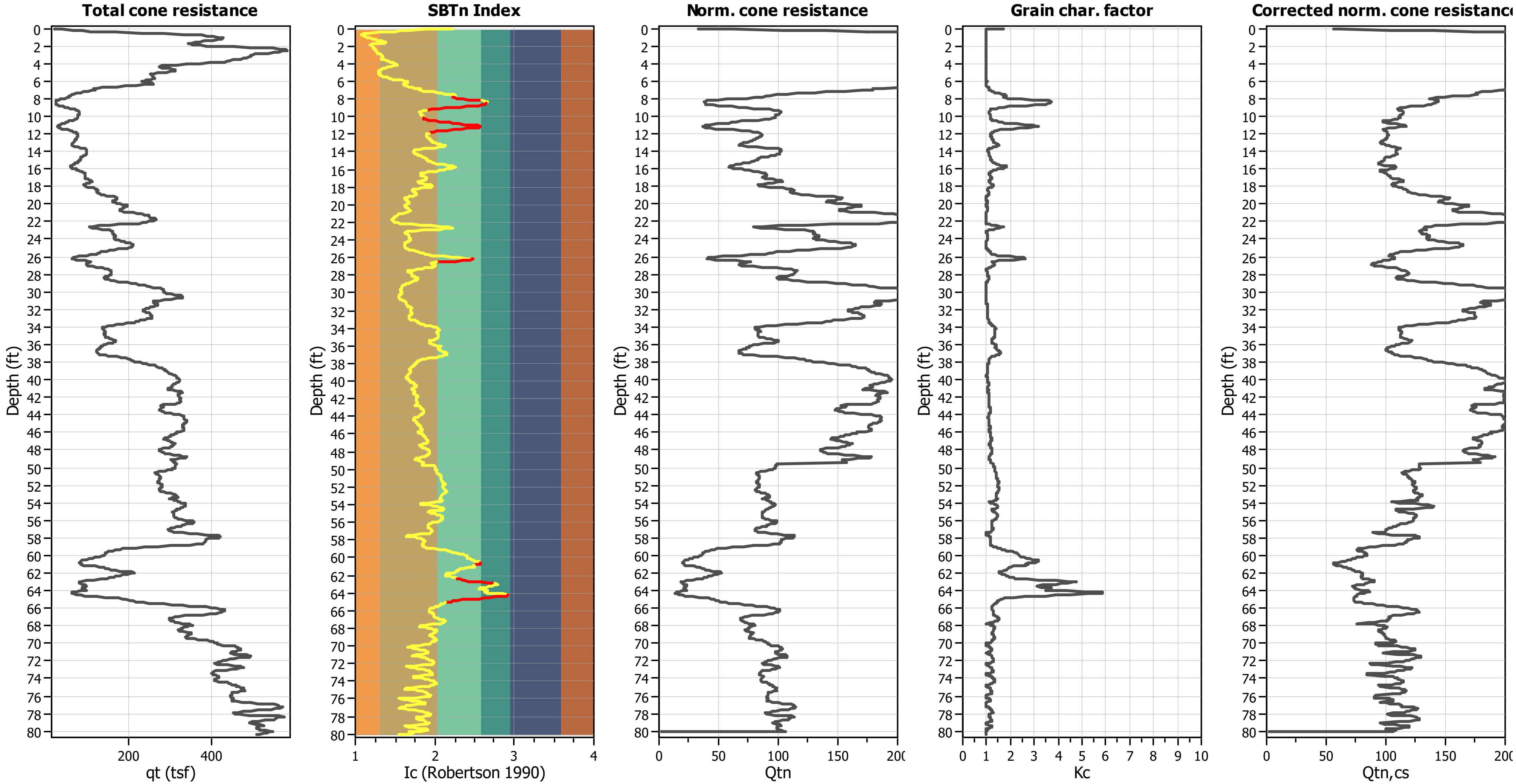
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

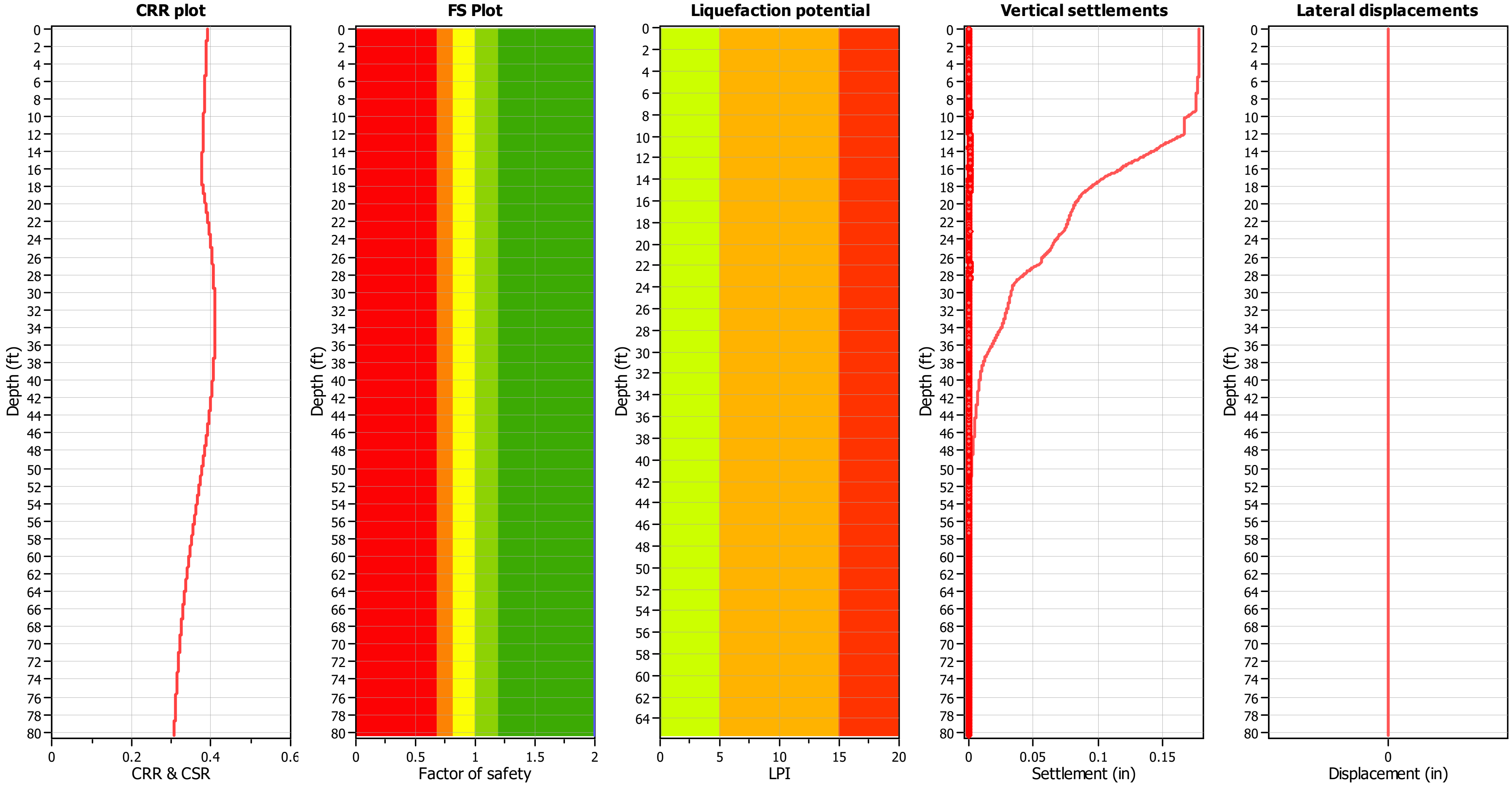
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

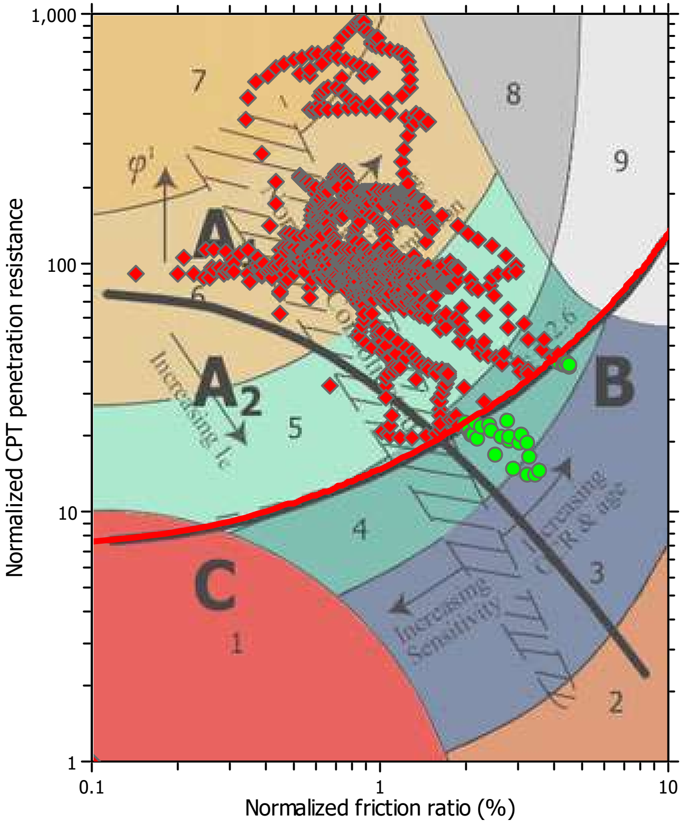
F.S. color scheme

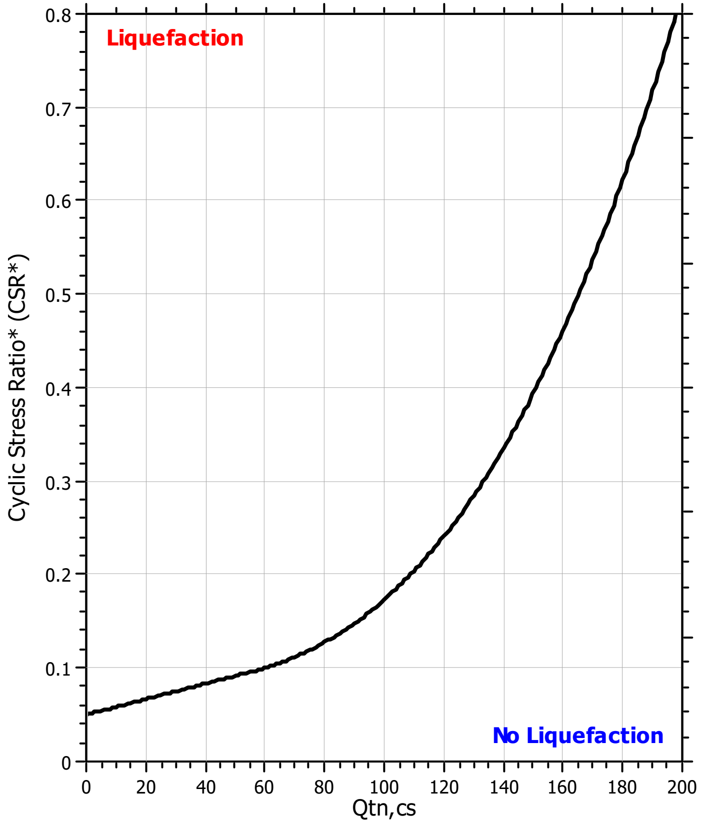
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

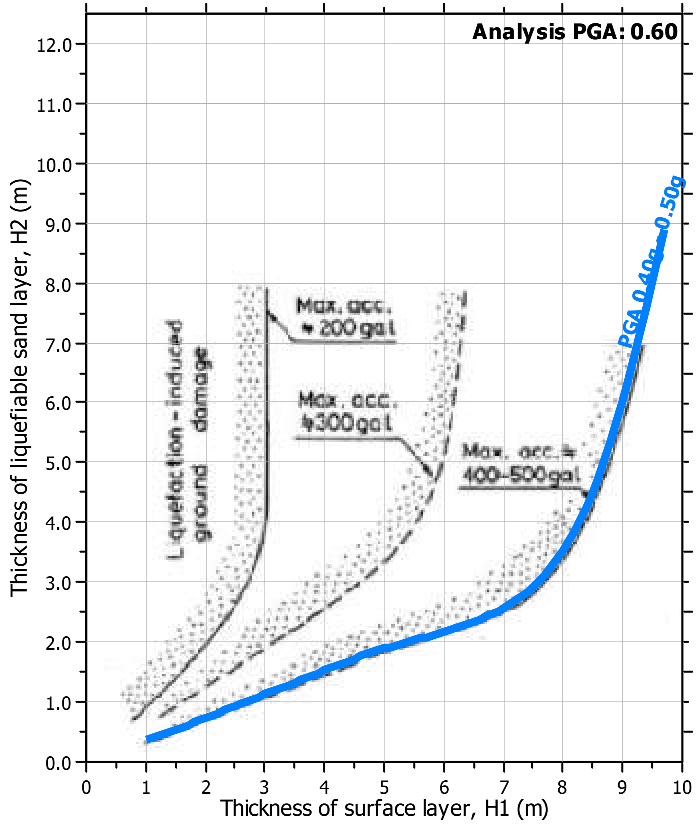
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



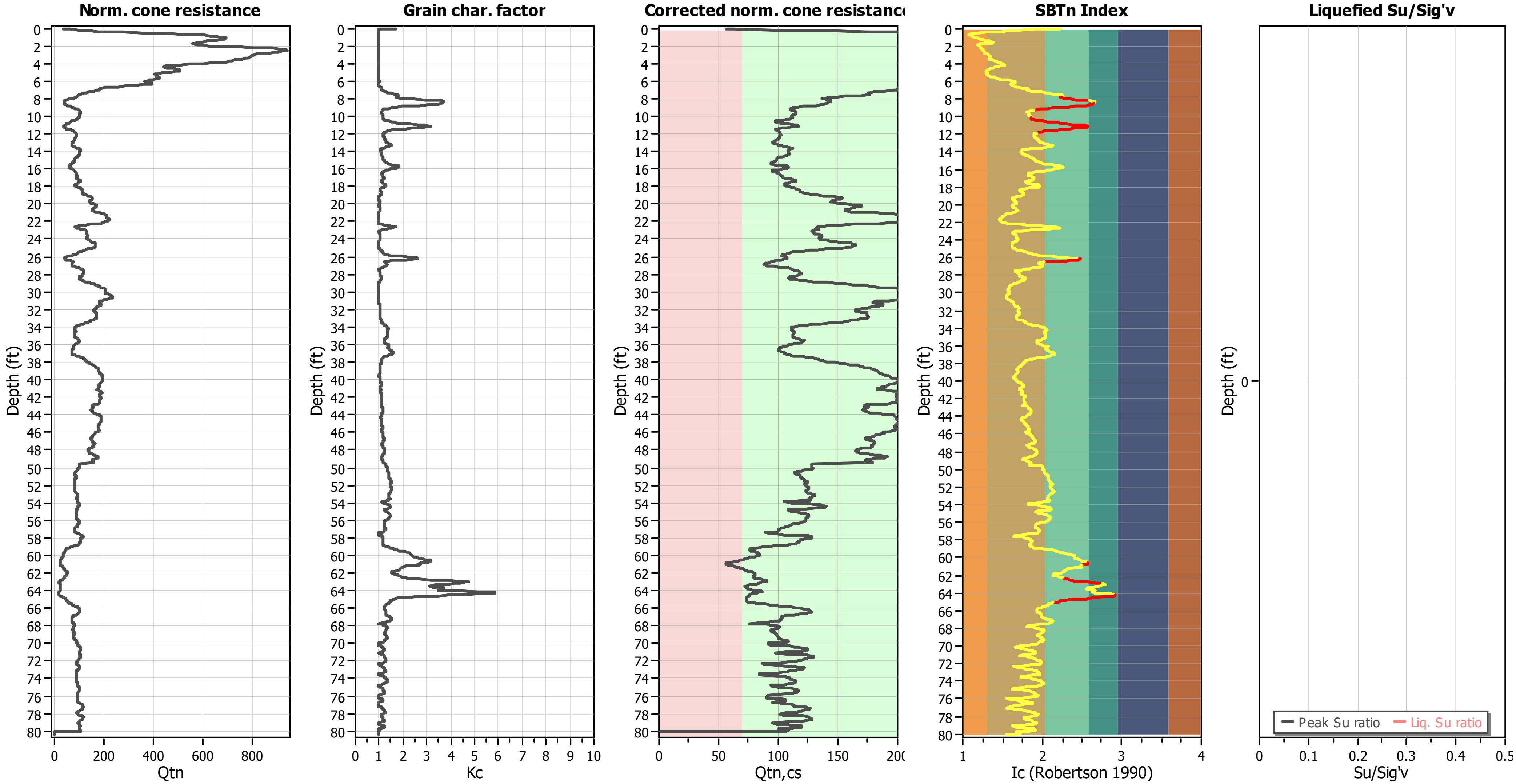




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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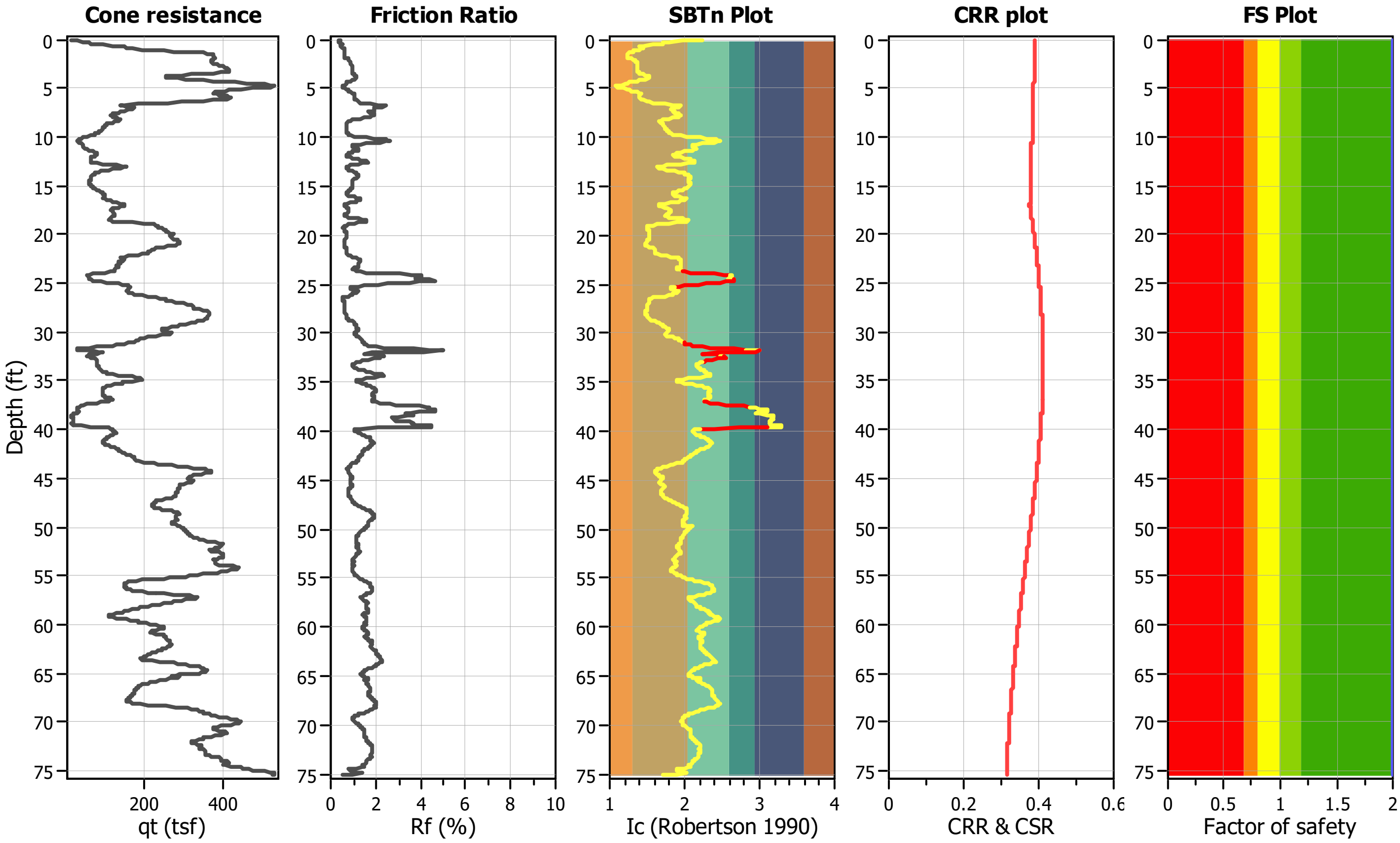
LIQUEFACTION ANALYSIS REPORT

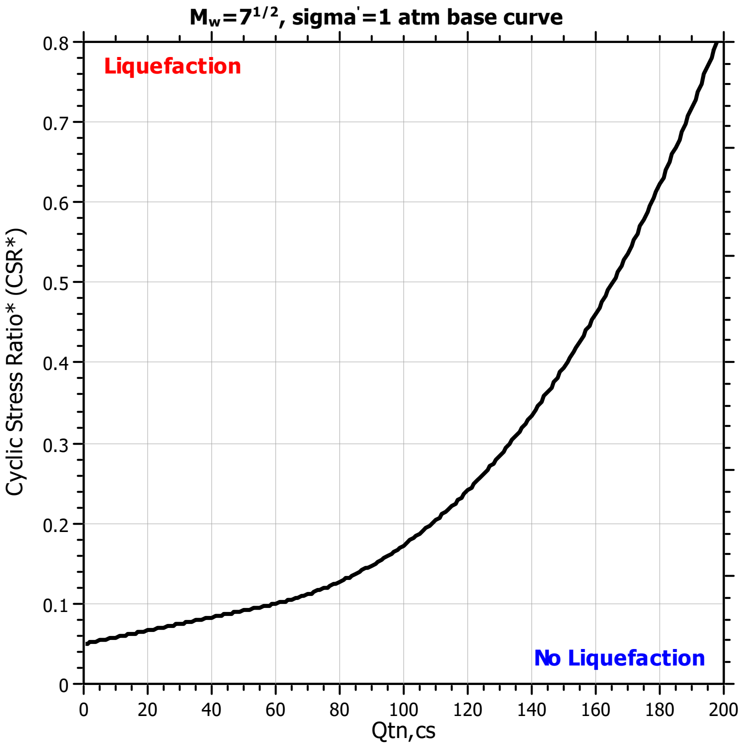
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

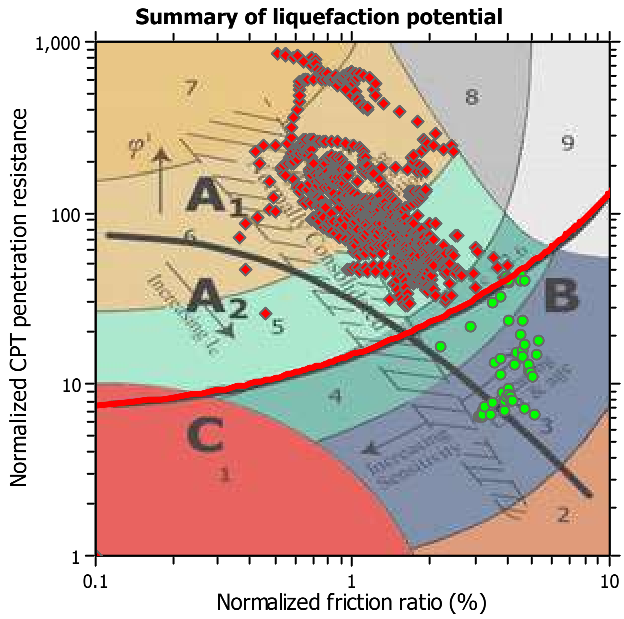
CPT file : 2020-CPT-5

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

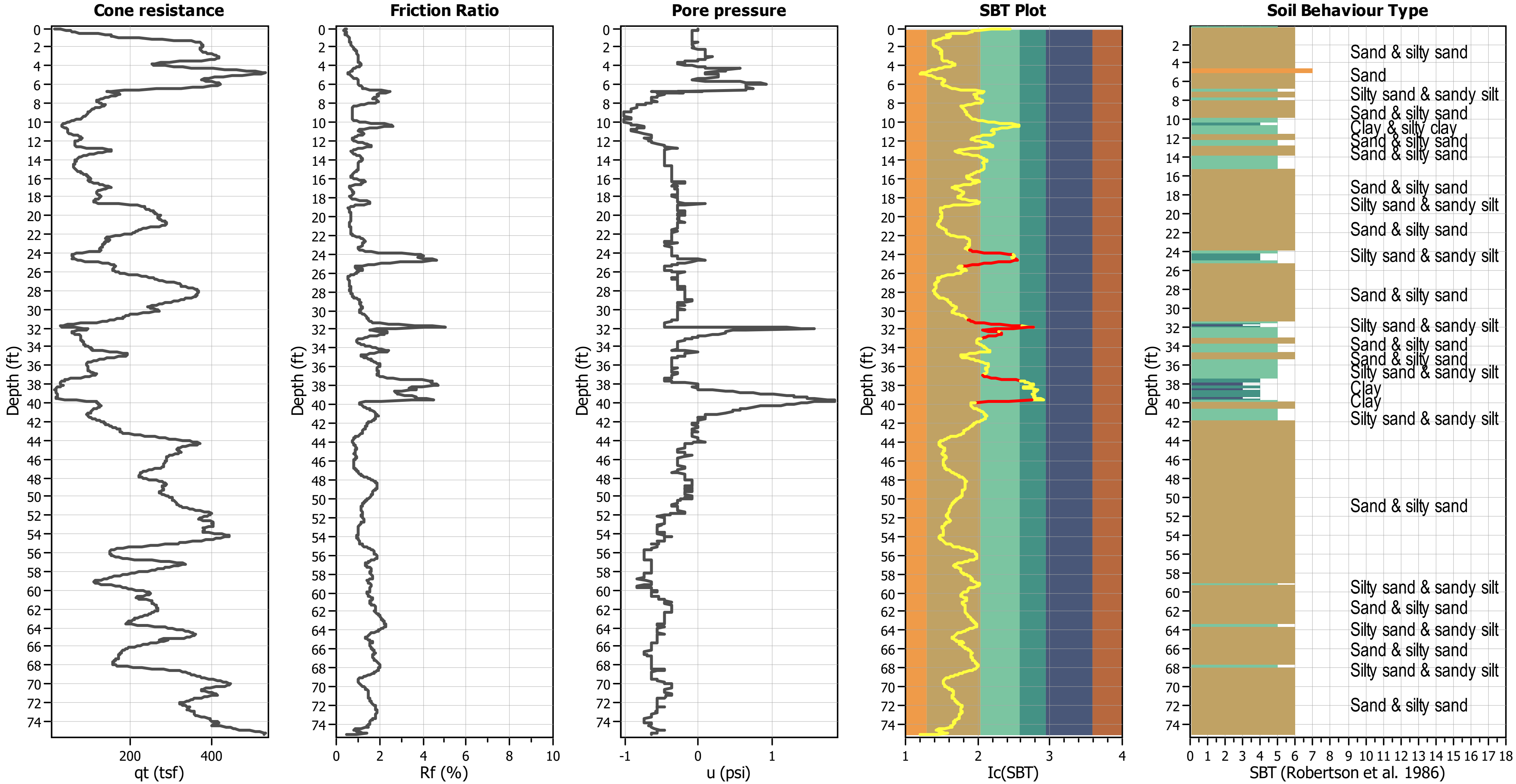






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



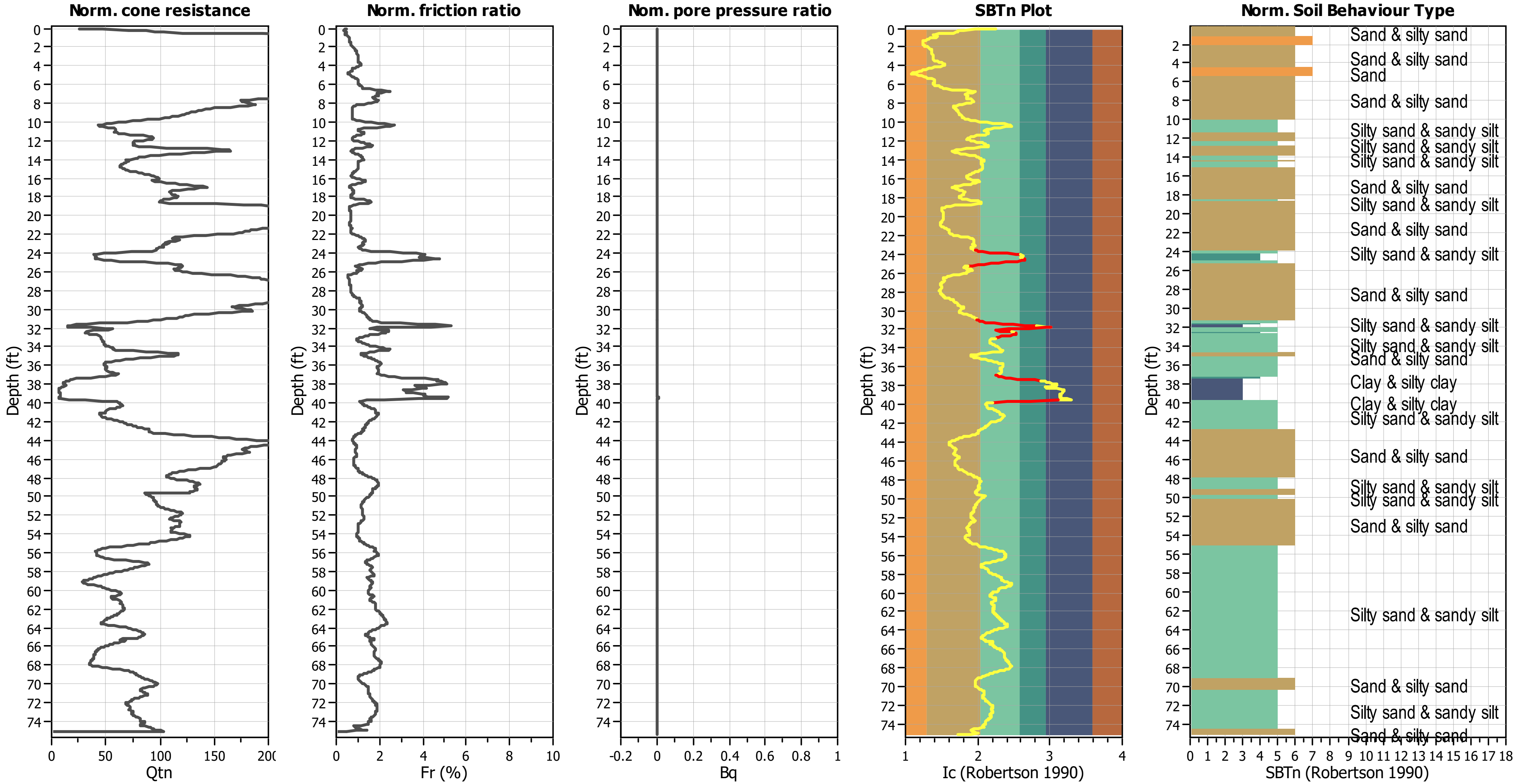
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



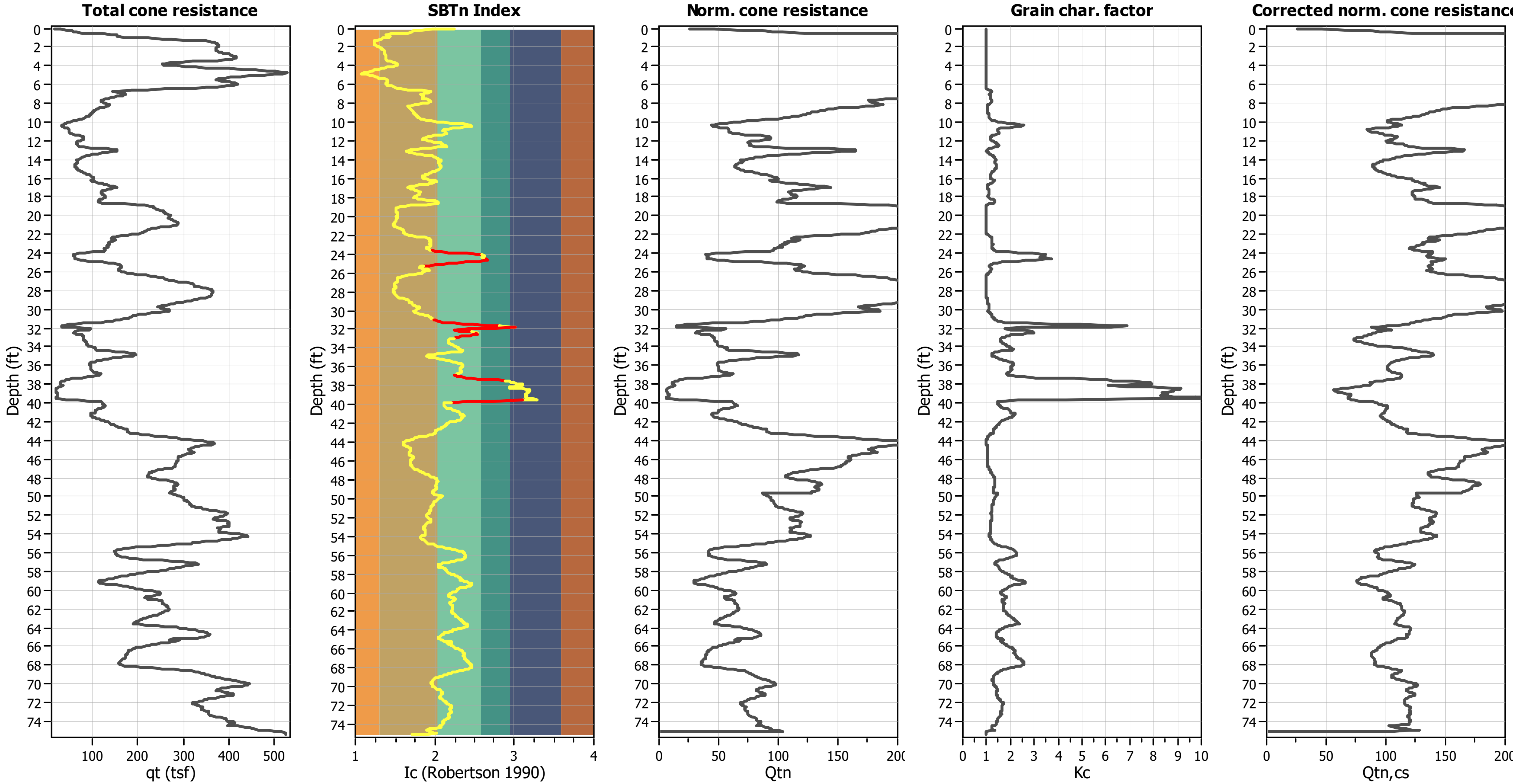
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

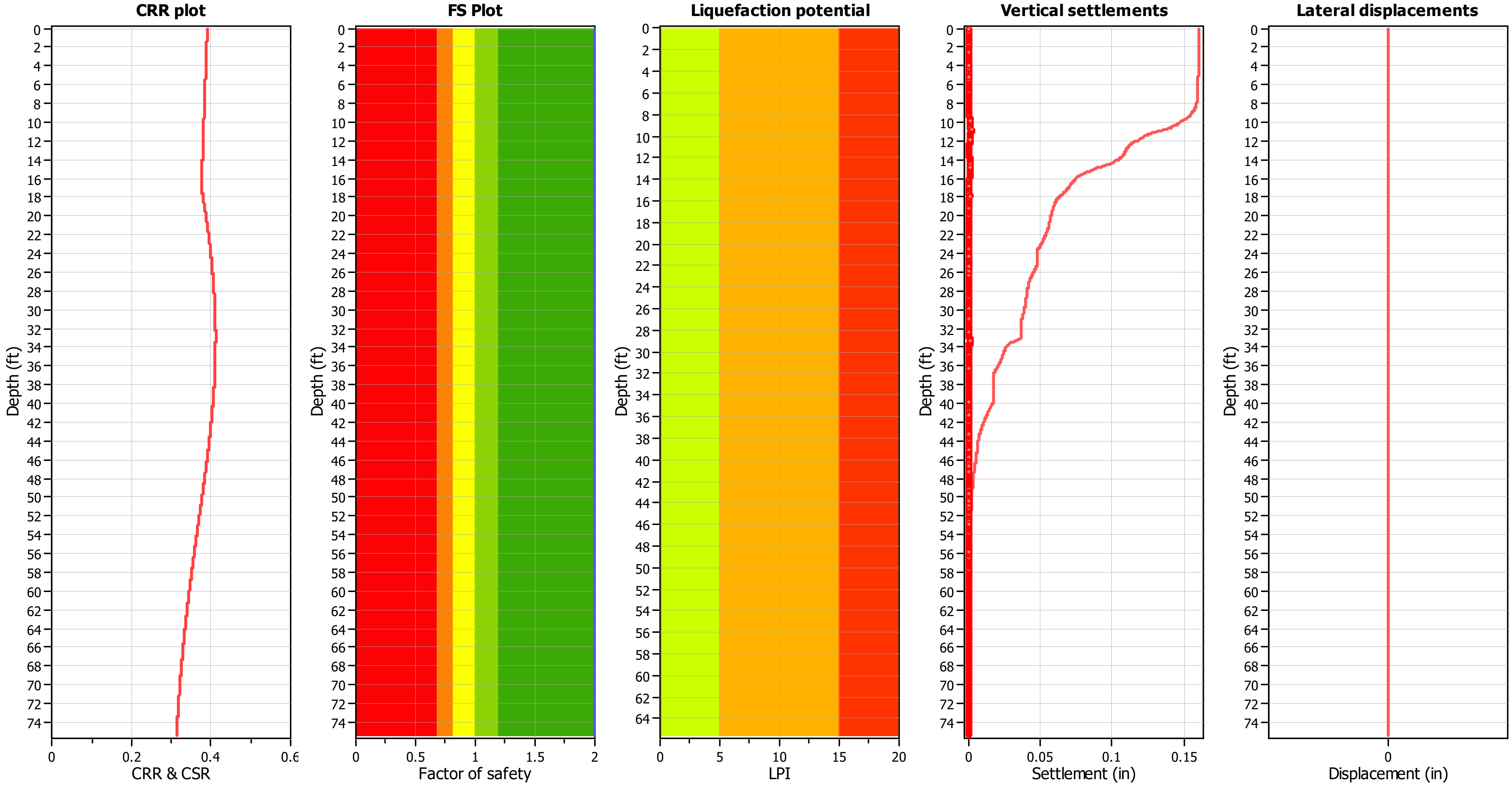
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

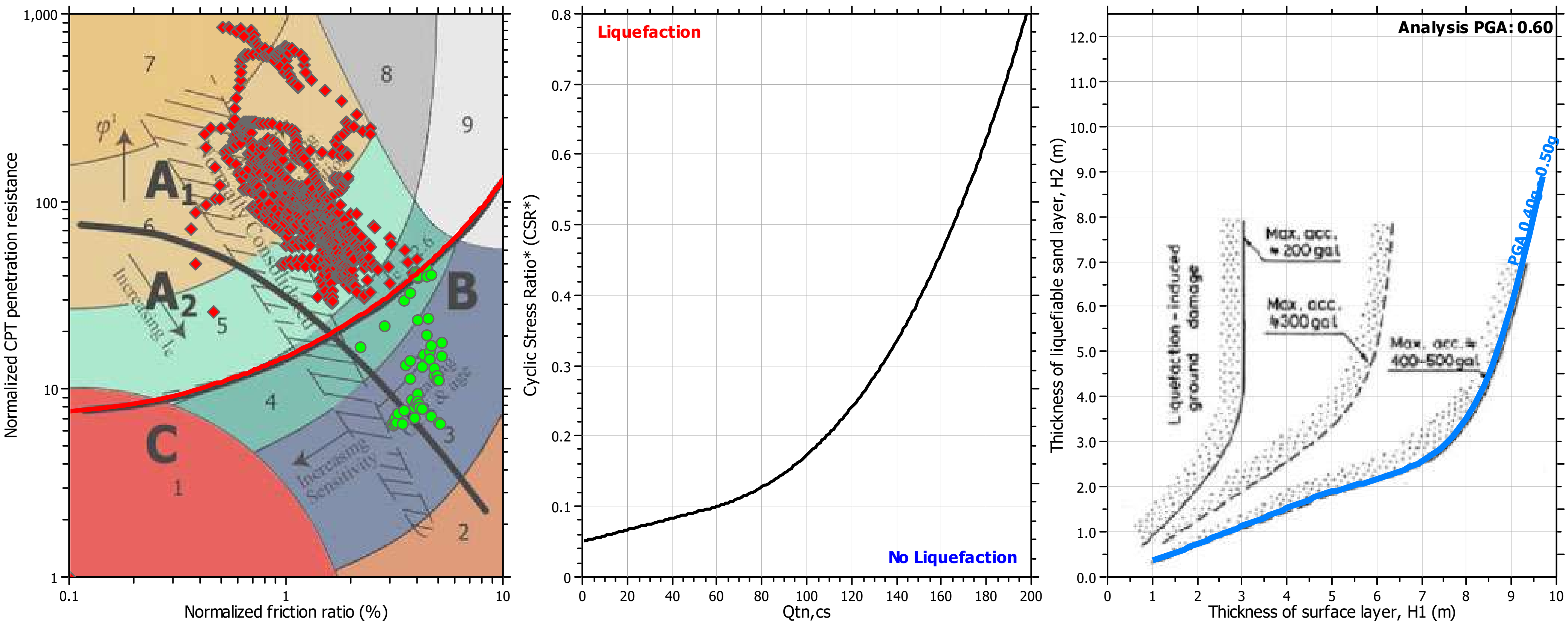
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

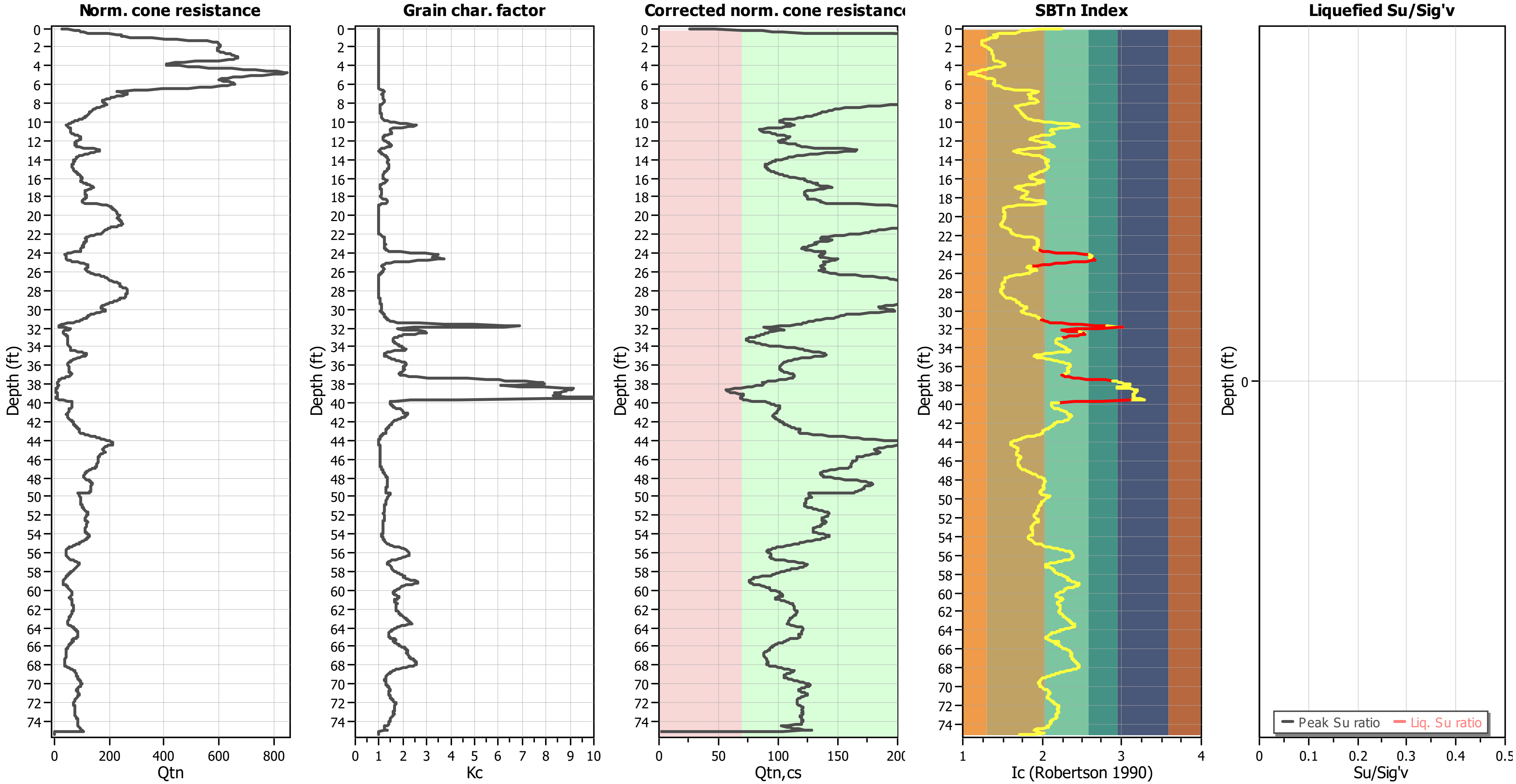
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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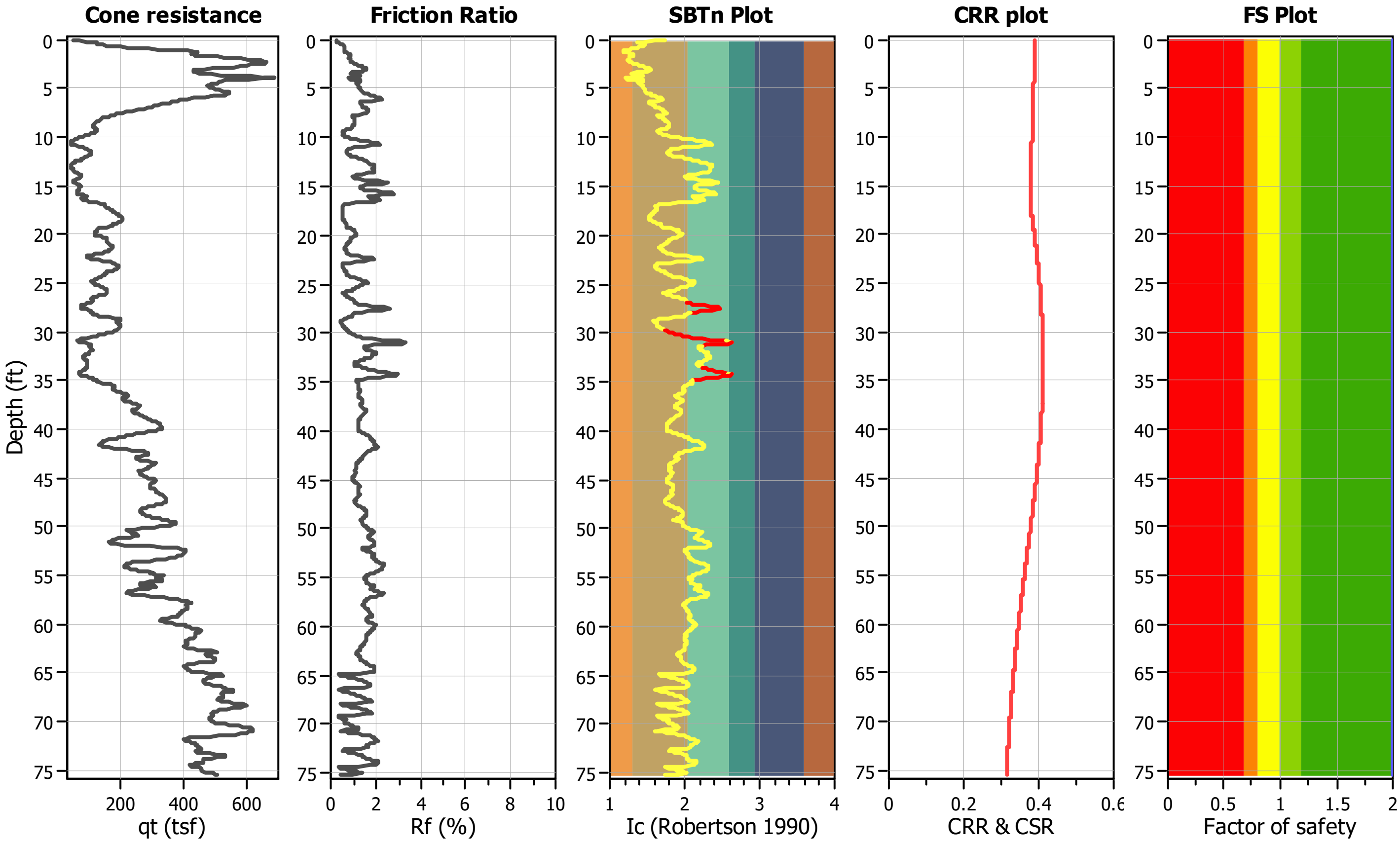
LIQUEFACTION ANALYSIS REPORT

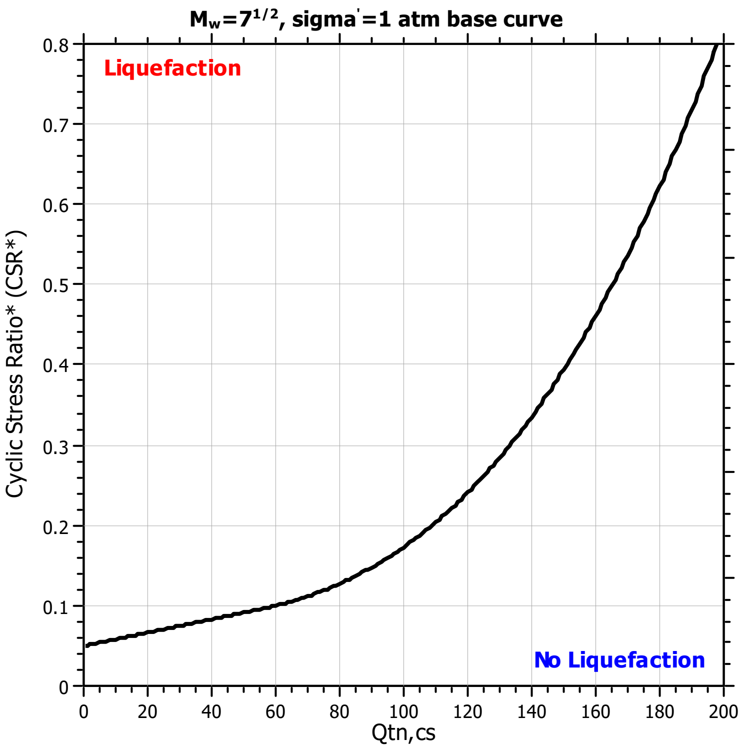
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

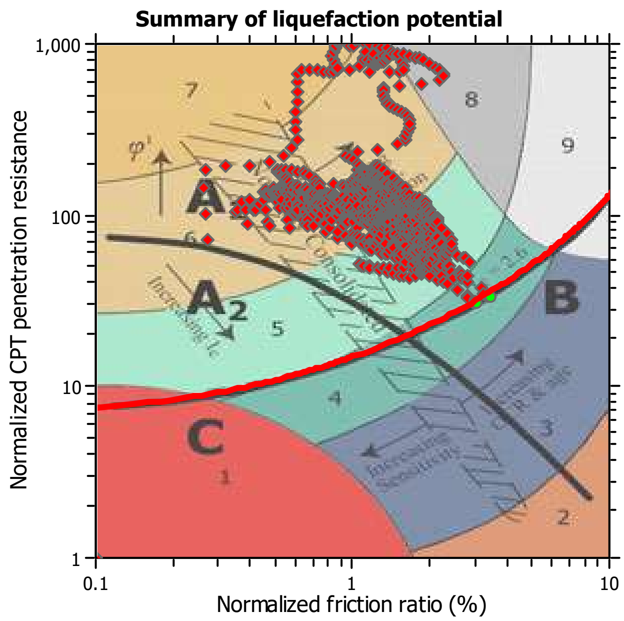
CPT file : 2020-CPT-6

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

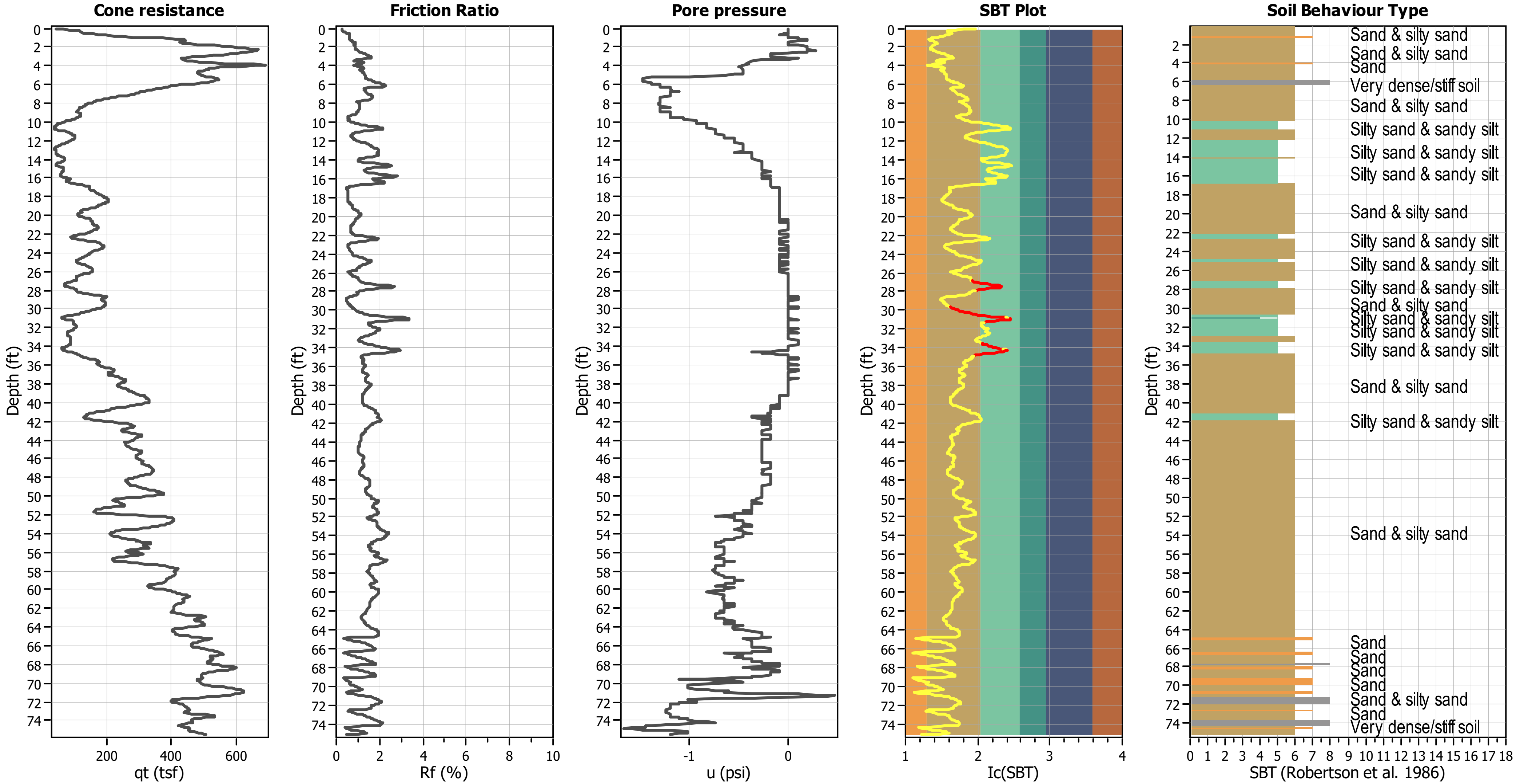






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



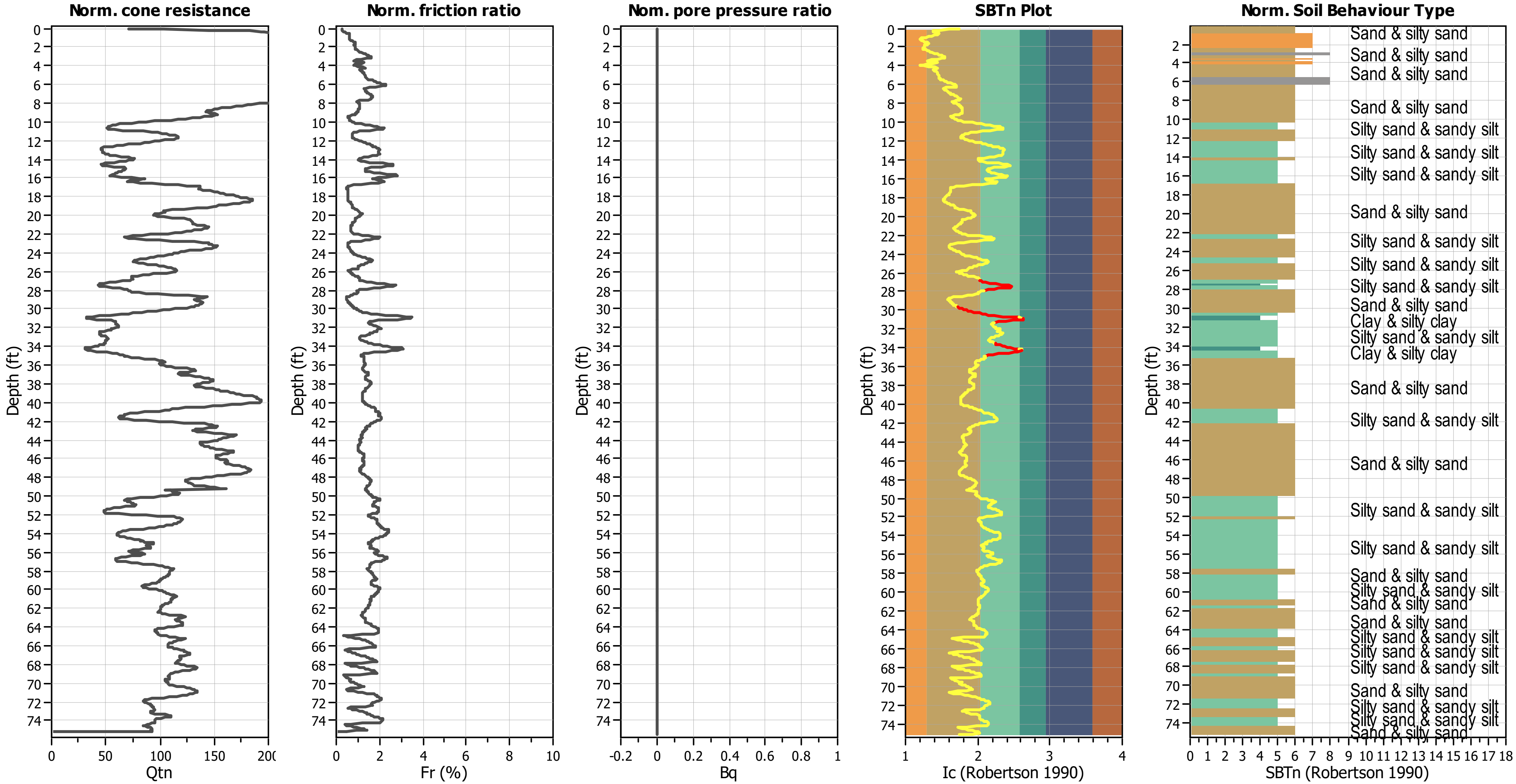
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



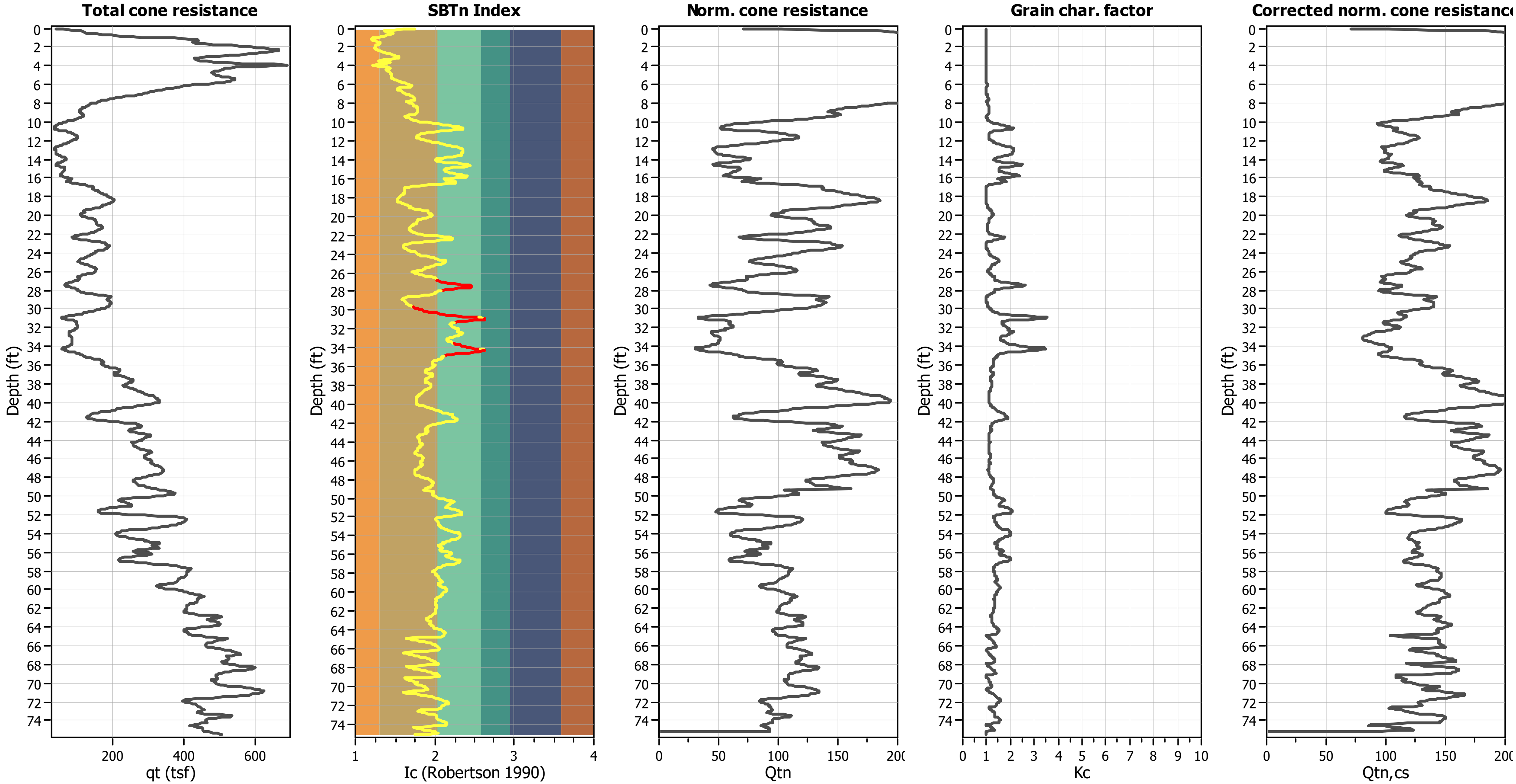
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

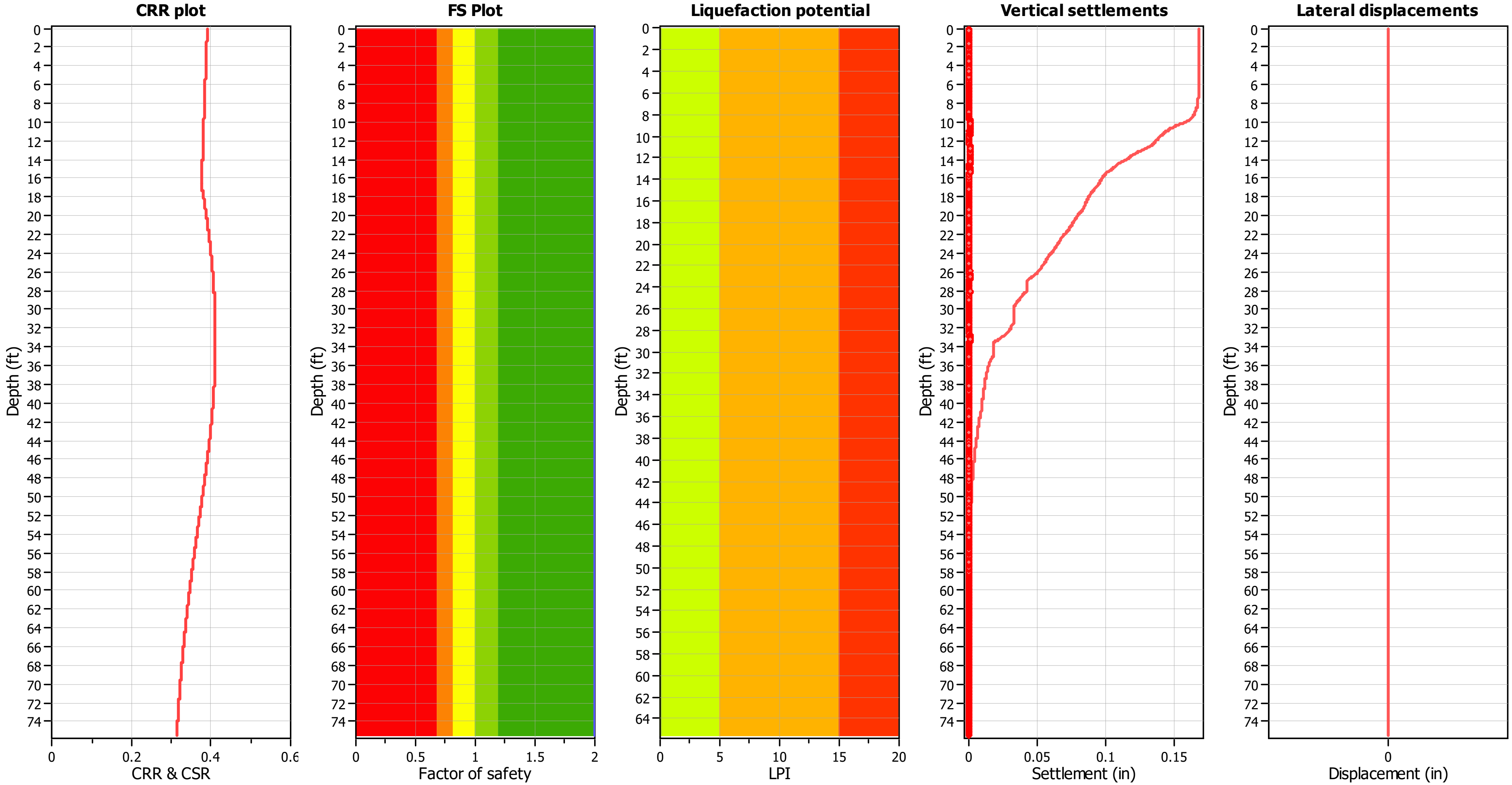
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

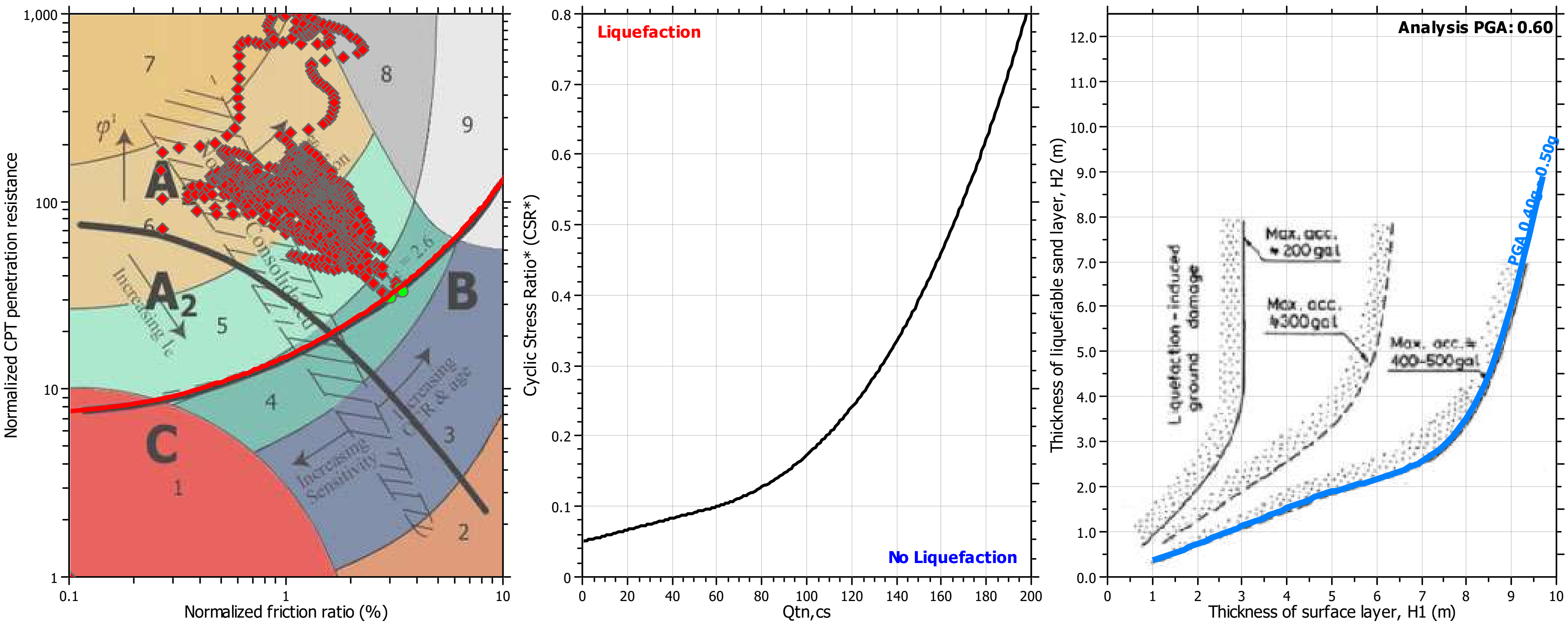
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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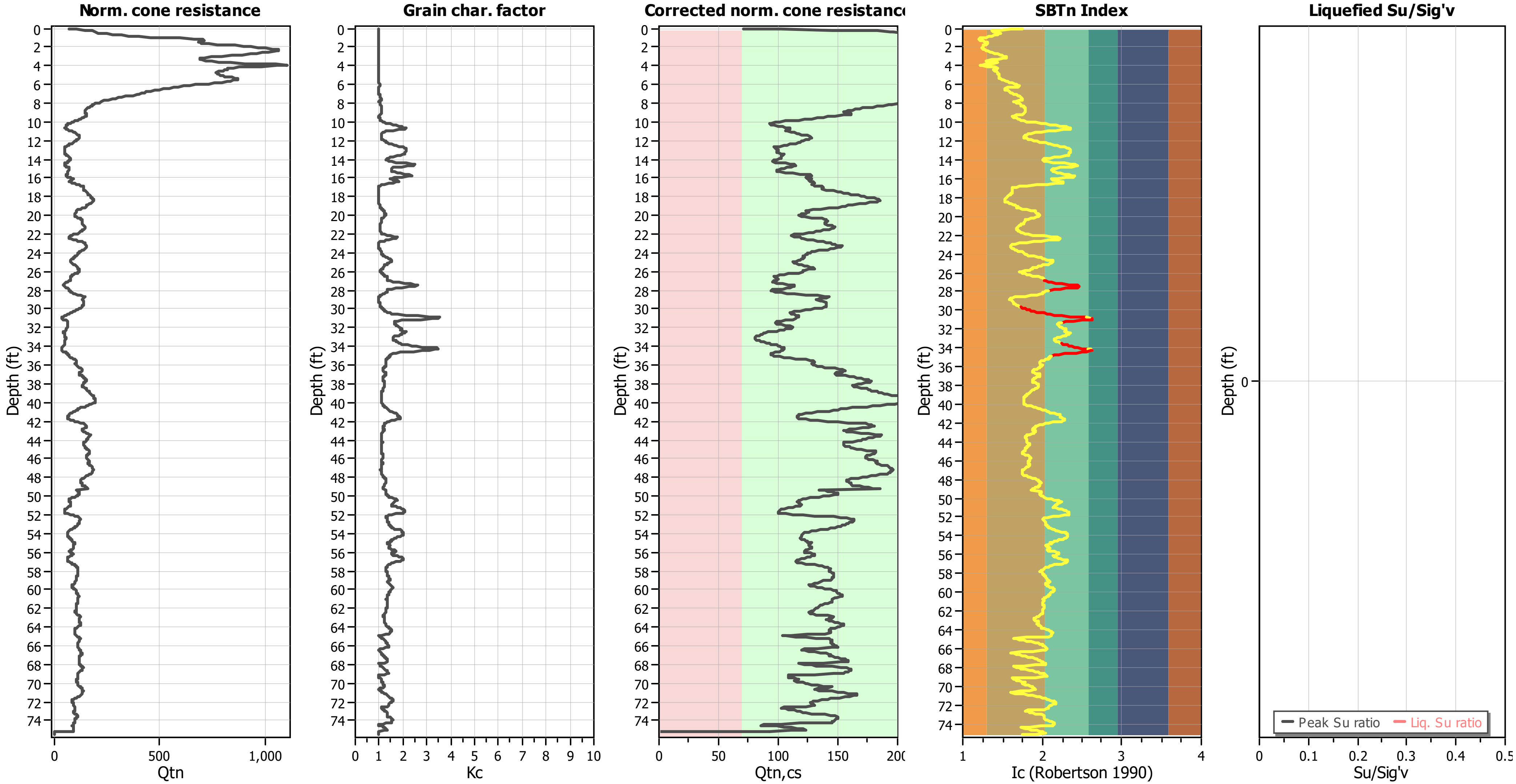
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



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Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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http://www.leightongeo.com

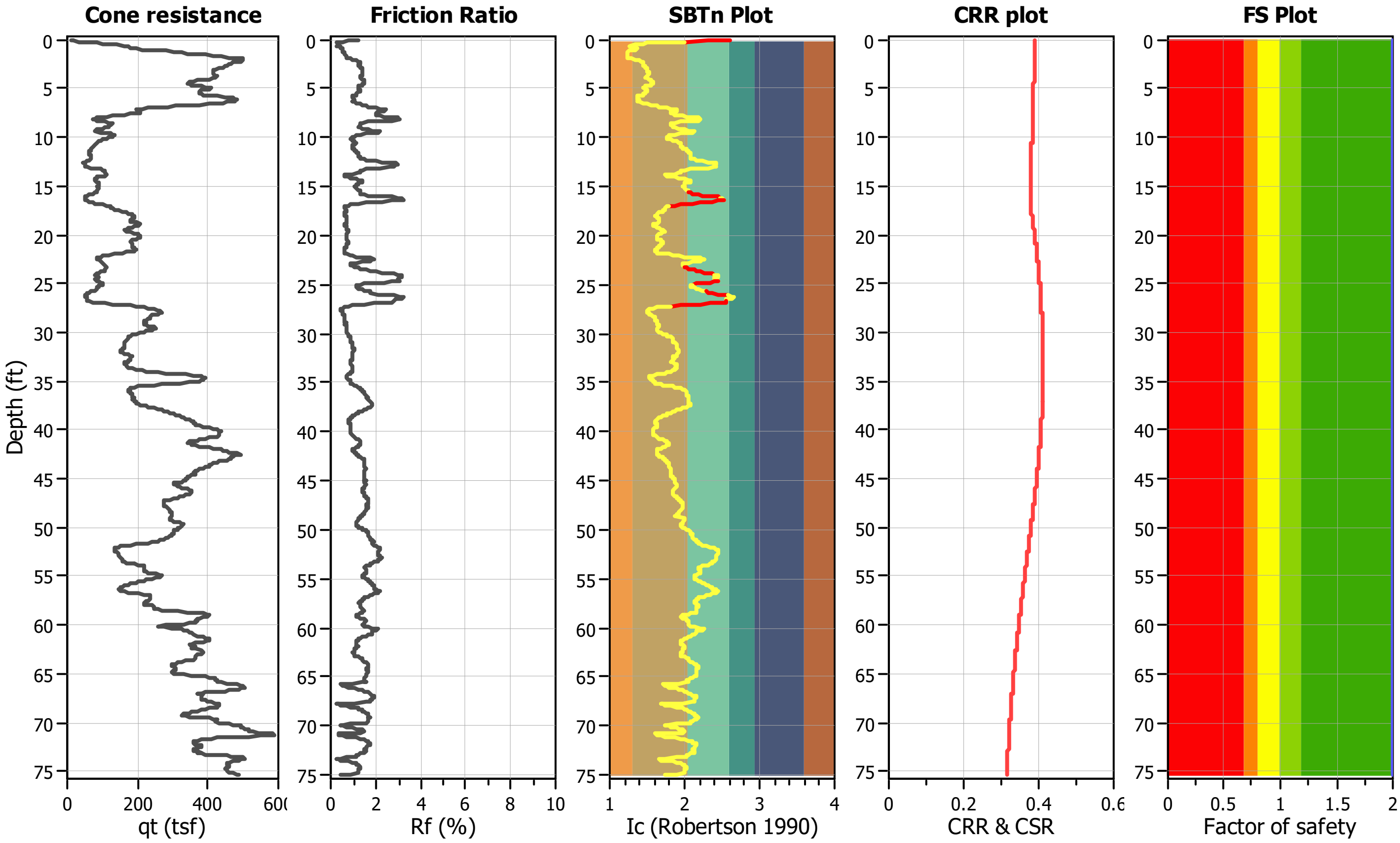
LIQUEFACTION ANALYSIS REPORT

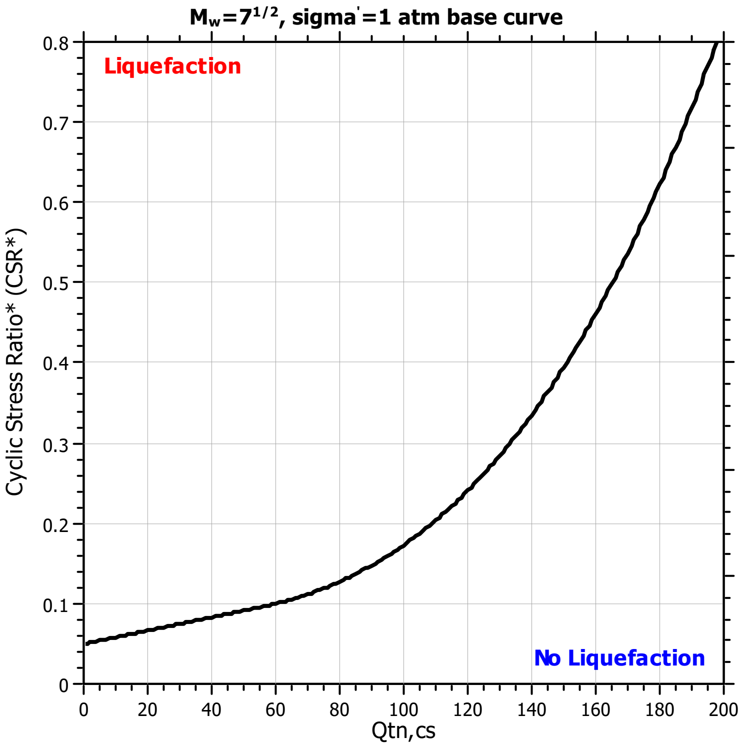
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

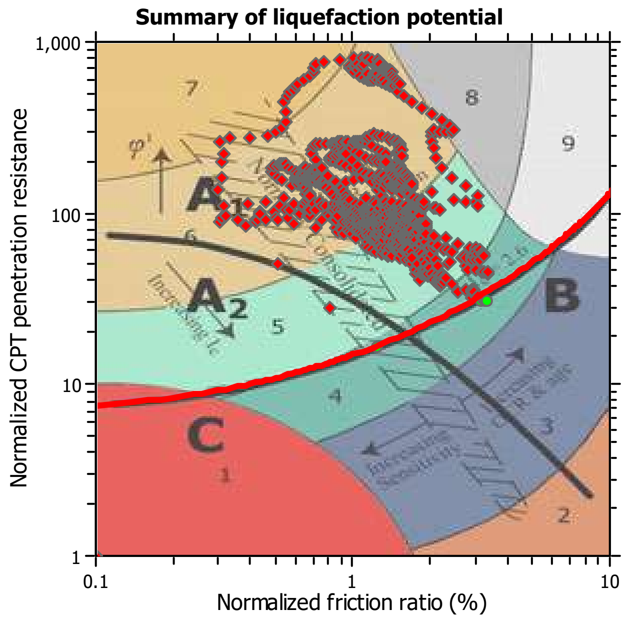
CPT file : 2020-CPT-7

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

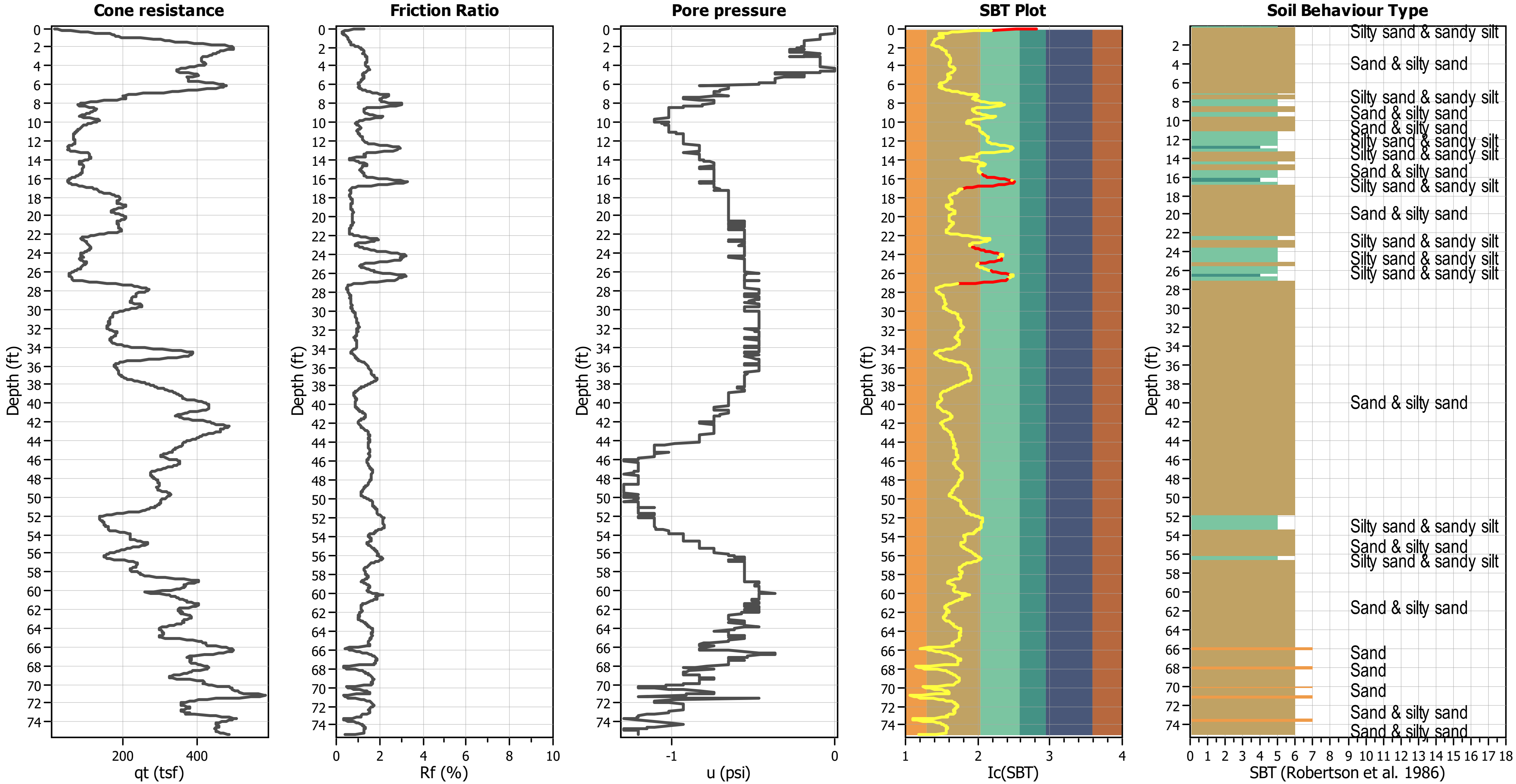






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



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Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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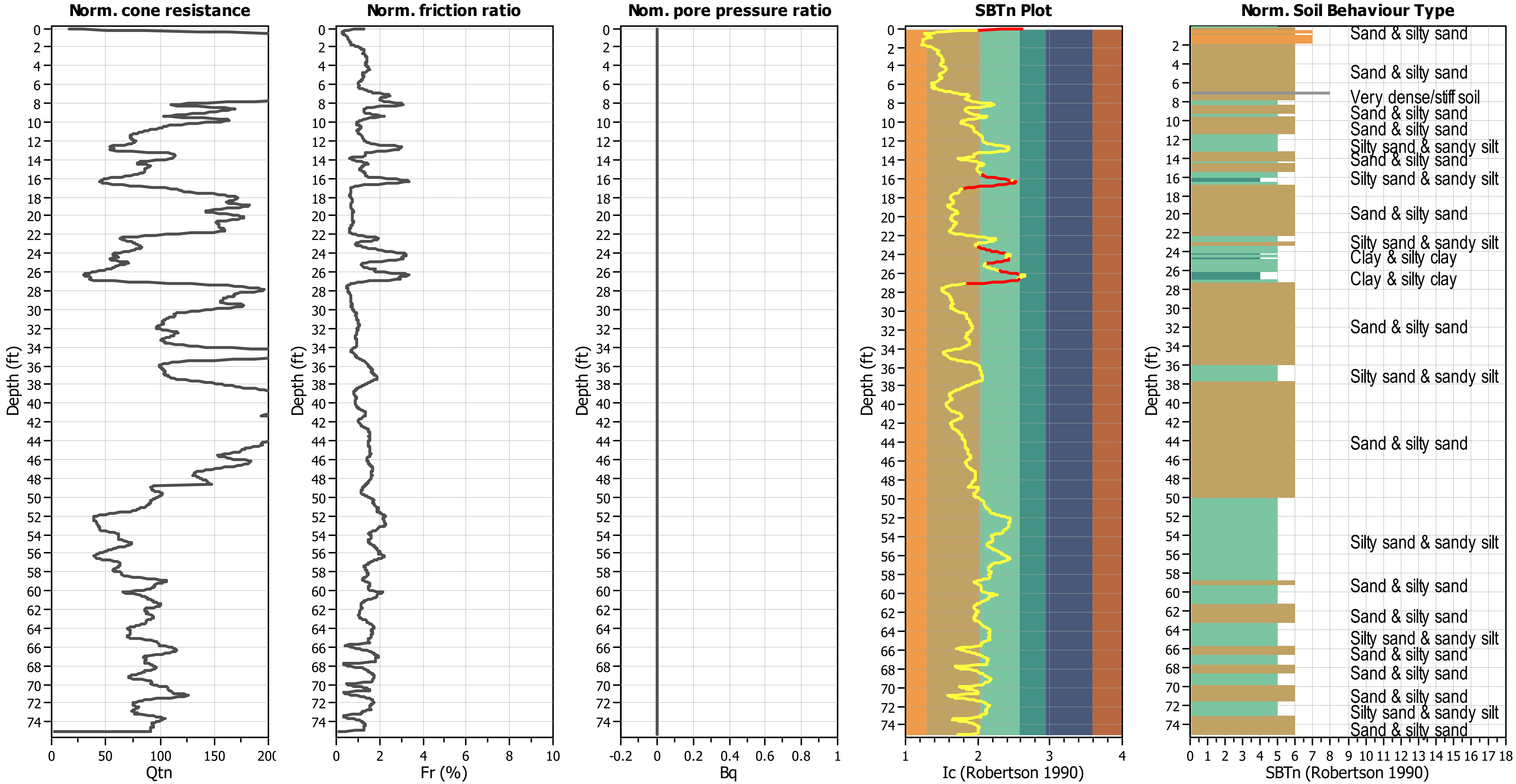
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
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SBTn legend

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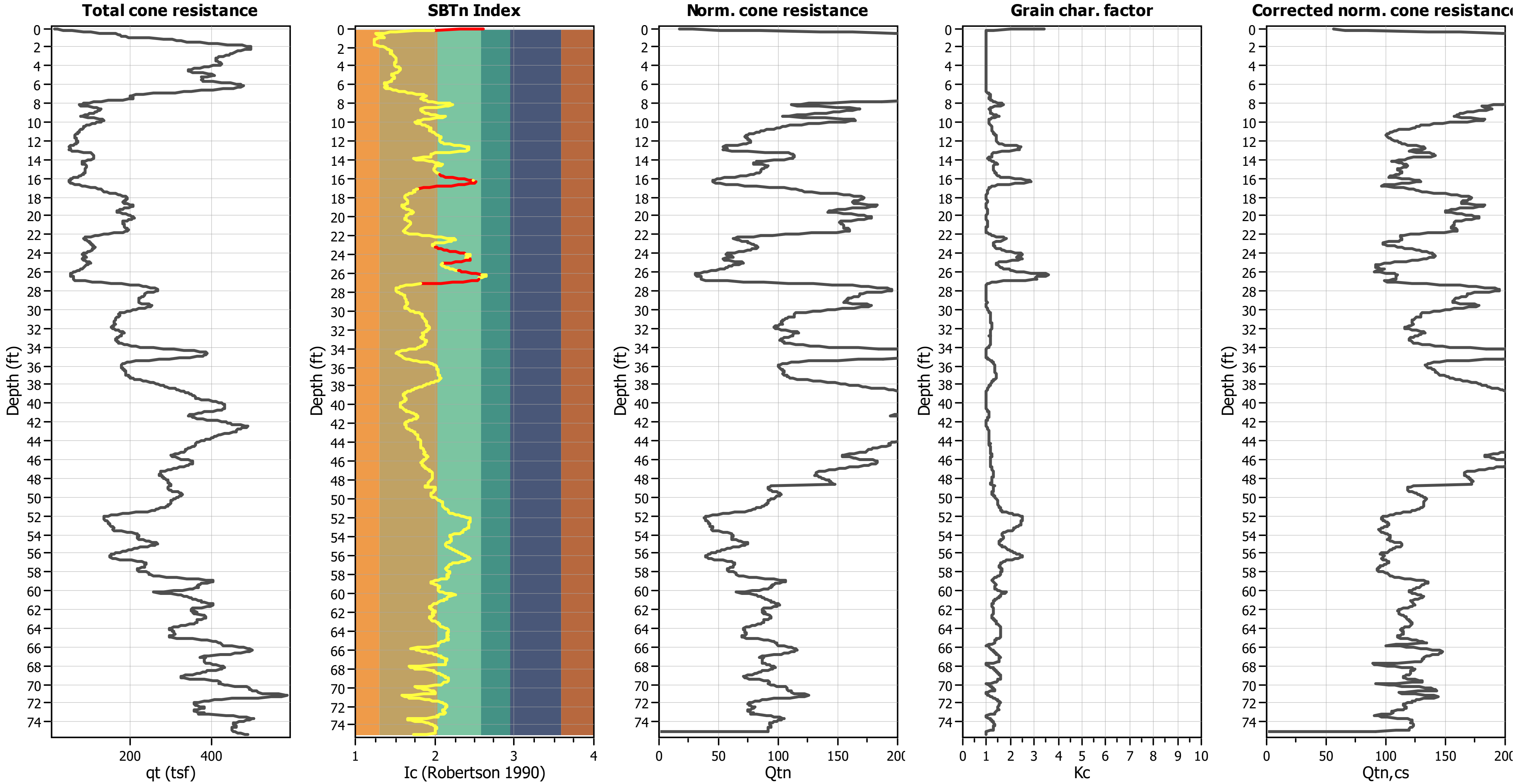
Liquefaction analysis overall plots (intermediate results)



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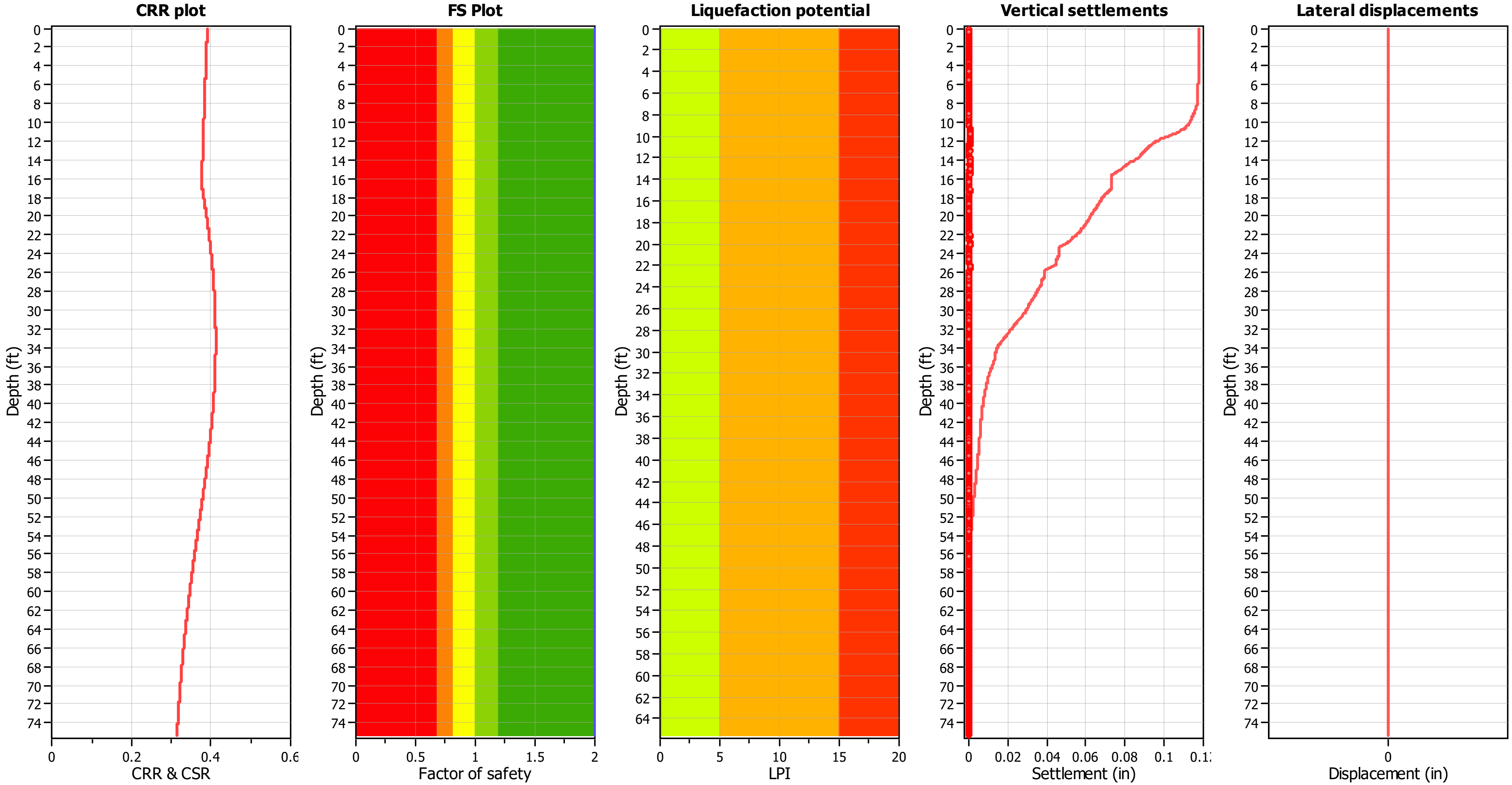
Liquefaction analysis overall plots



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Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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F.S. color scheme

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LPI color scheme

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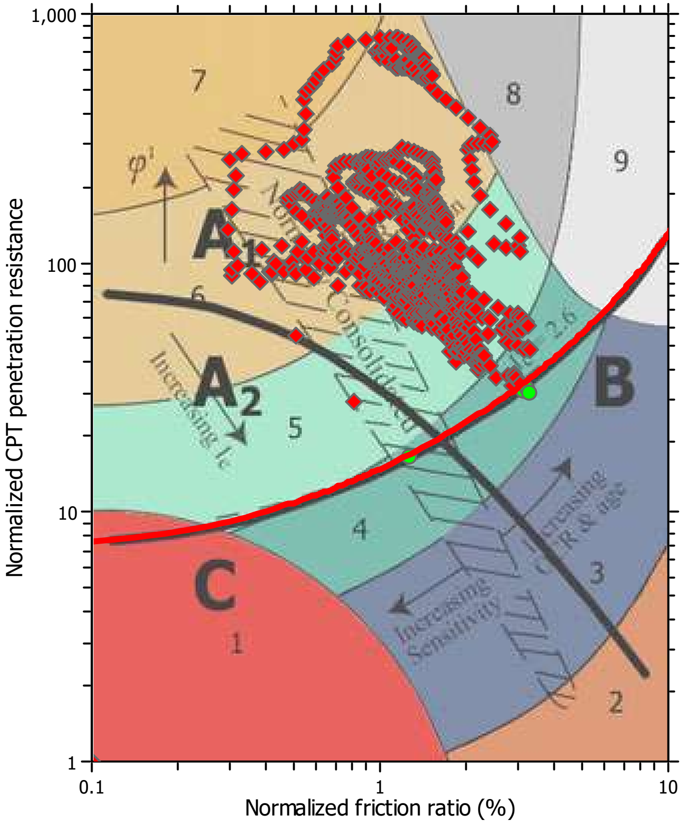
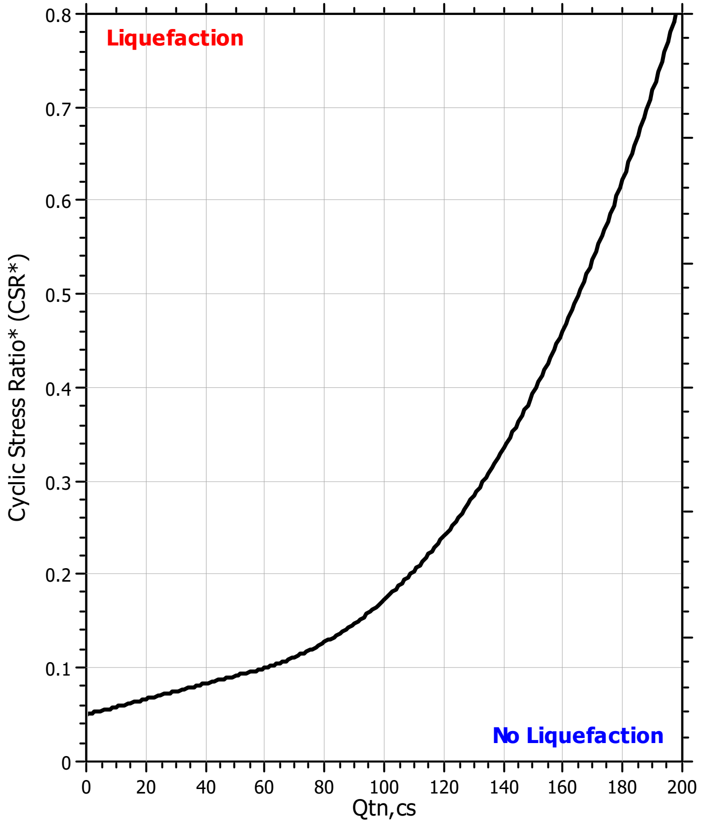
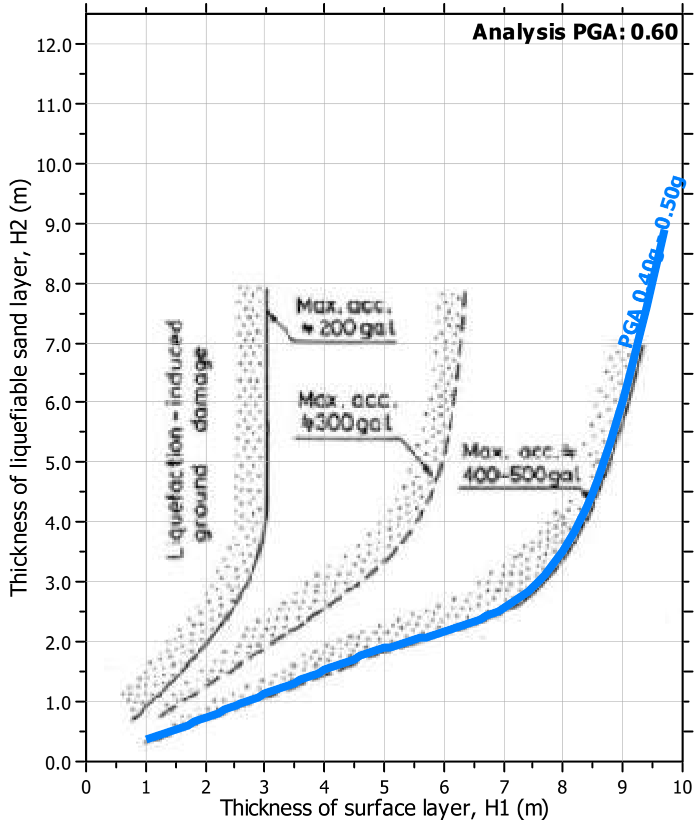
- High risk
- Low risk

Liquefaction analysis summary plots







Input parameters and analysis data

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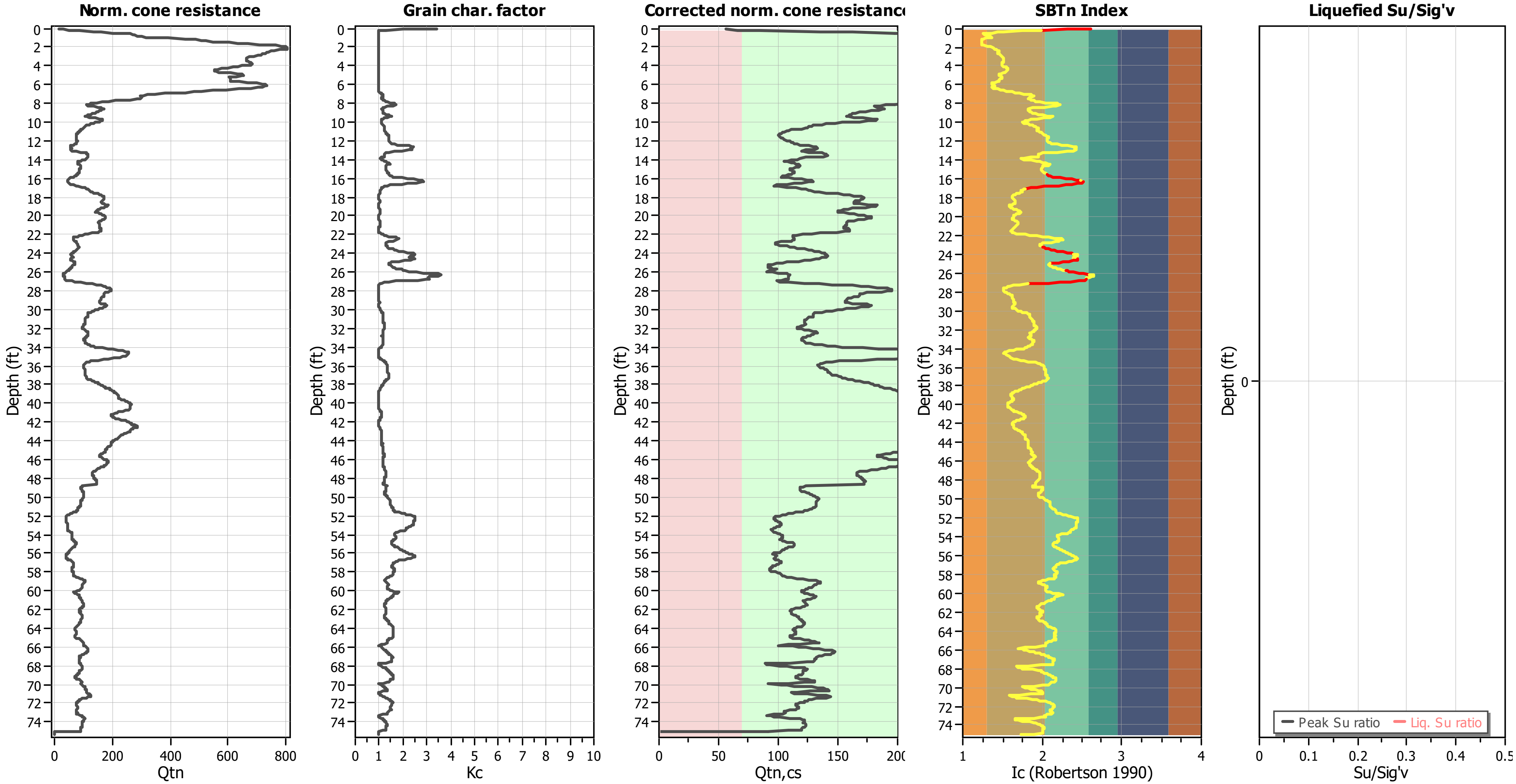
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

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Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

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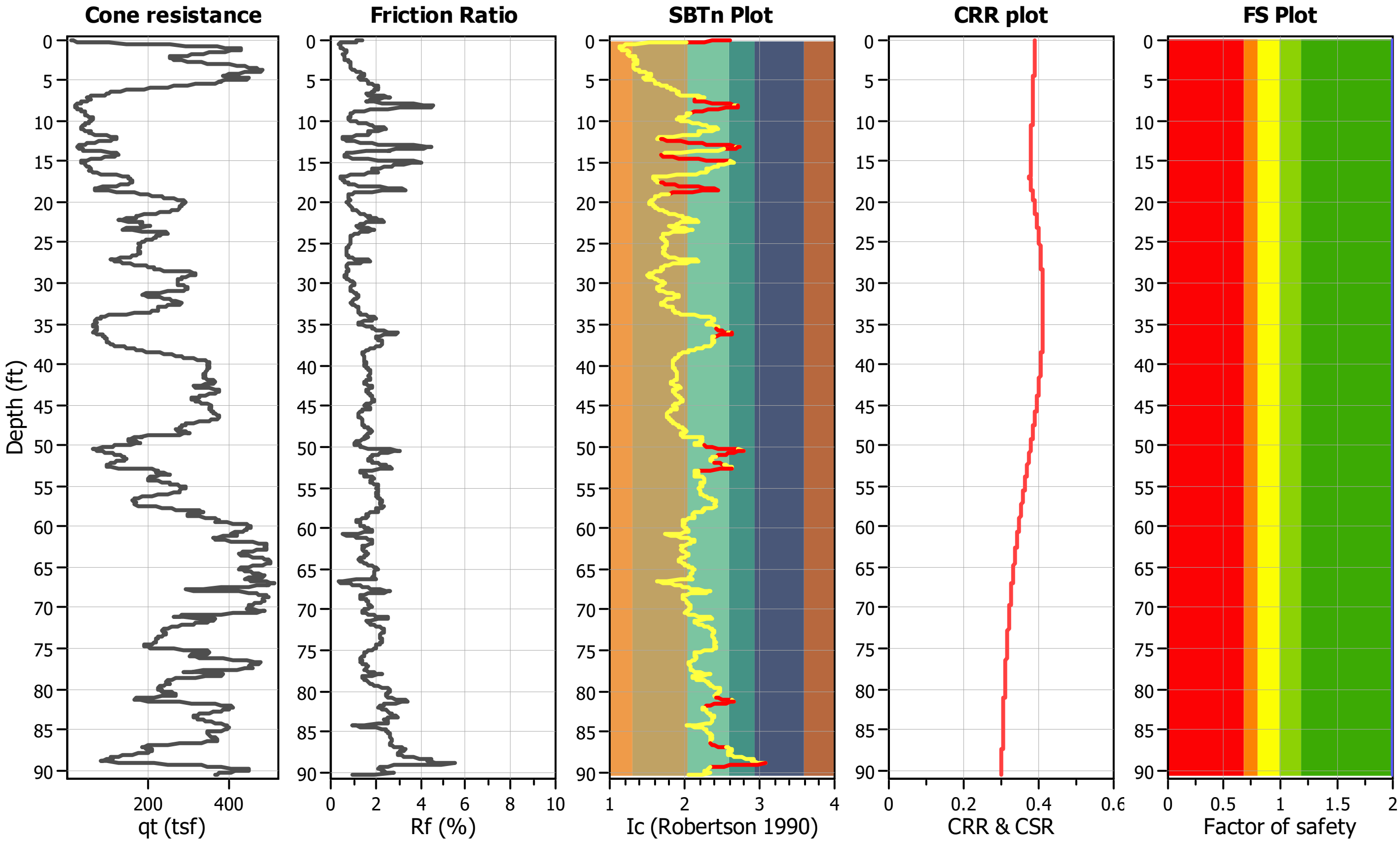
LIQUEFACTION ANALYSIS REPORT

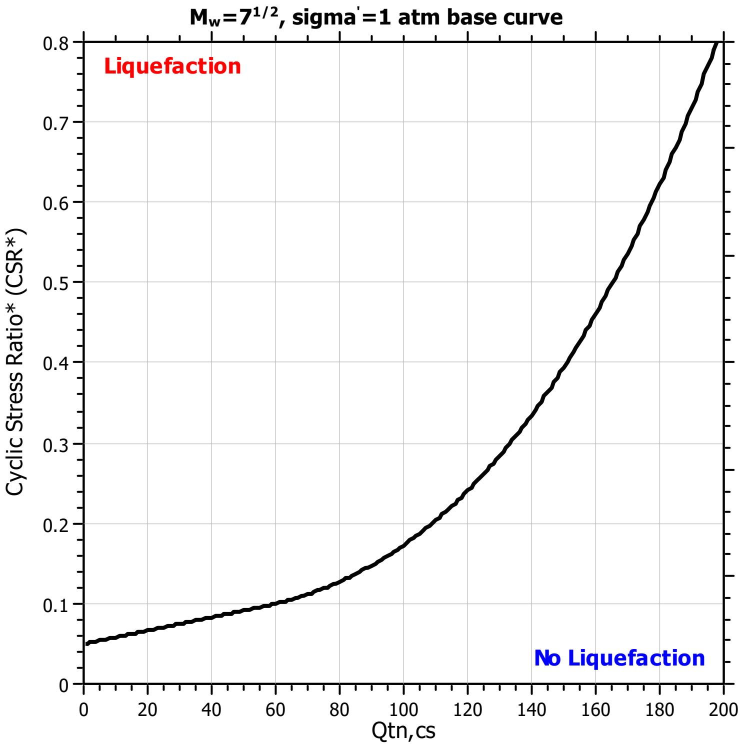
Project title : Coachella Valley Arena **Location : Varner Road & Cook Street, Palm Desert, CA**

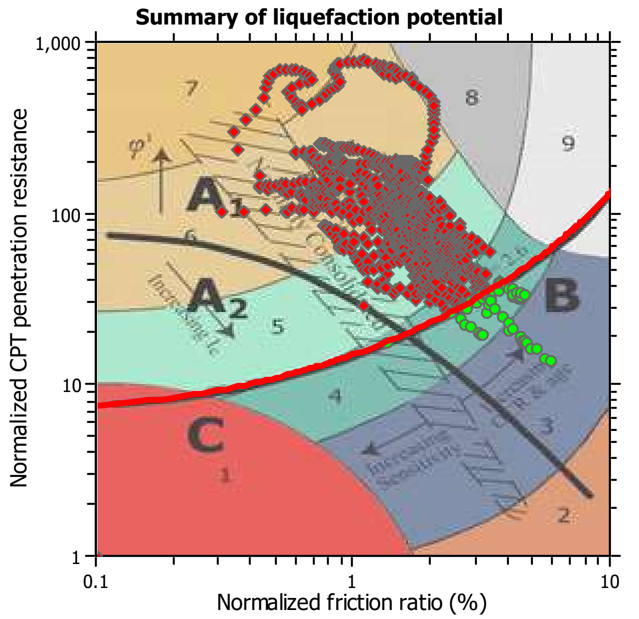
CPT file : 2020-CPT-8

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	200.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	200.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.60	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
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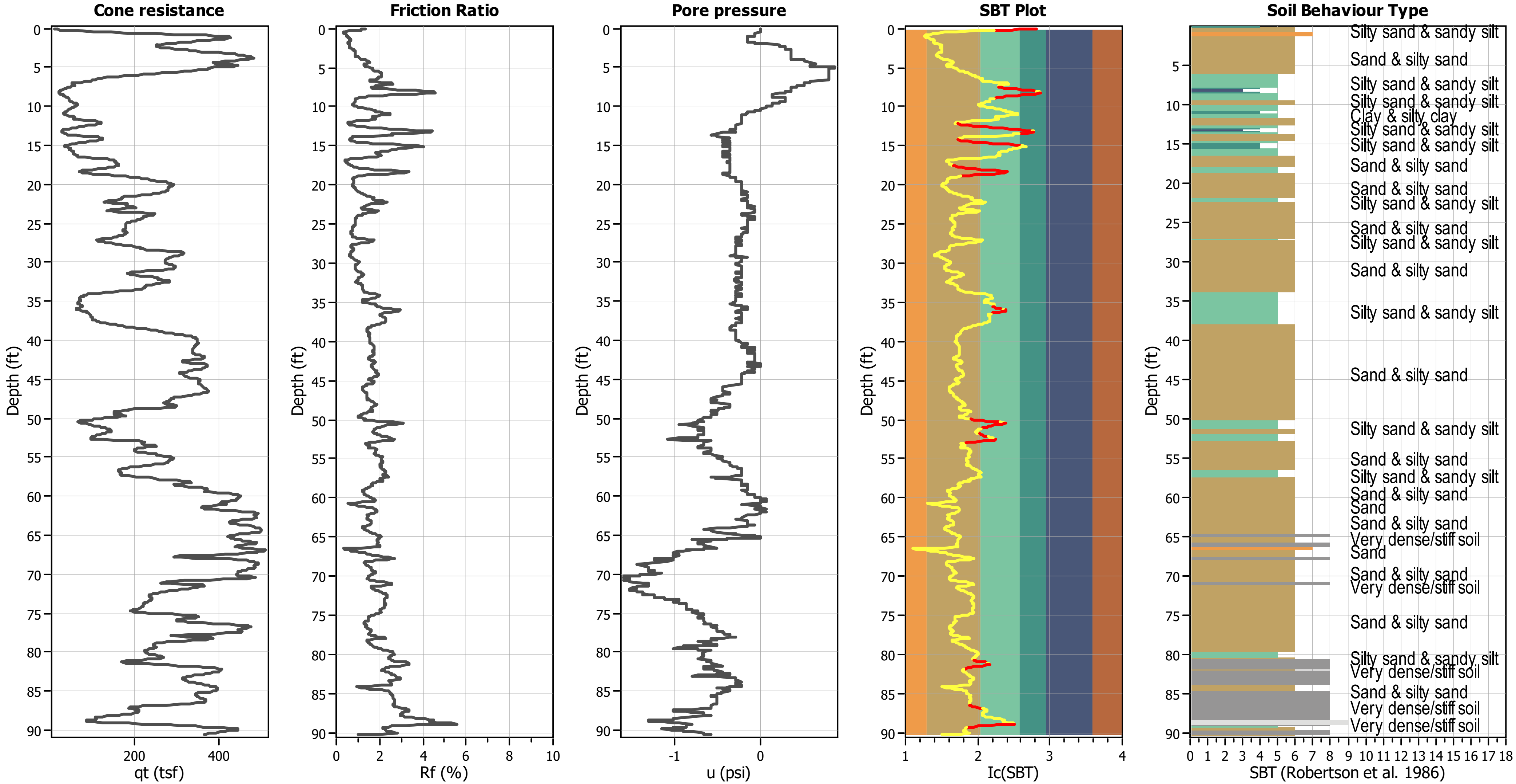
CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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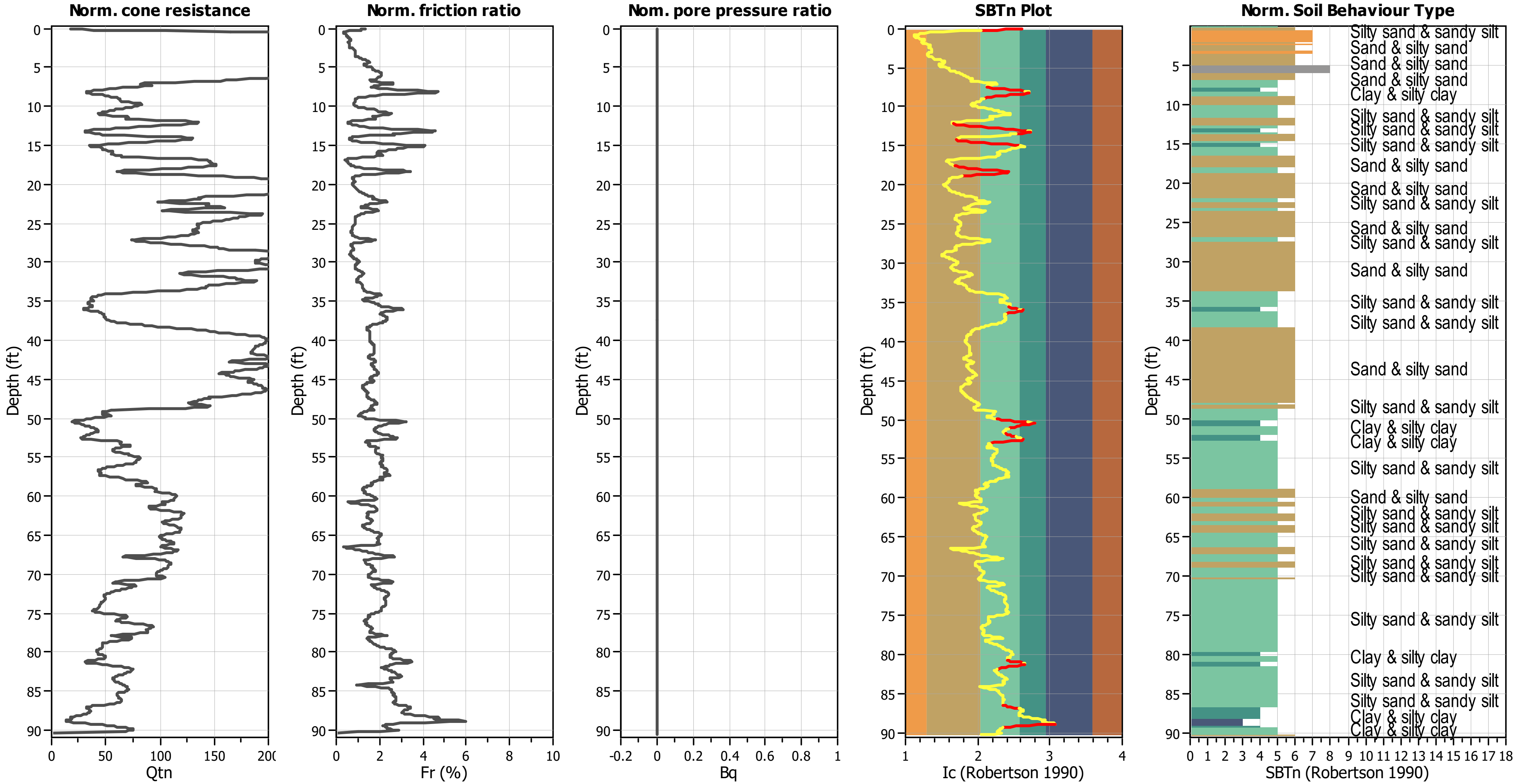
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



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Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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SBTn legend

- 1. Sensitive fine grained
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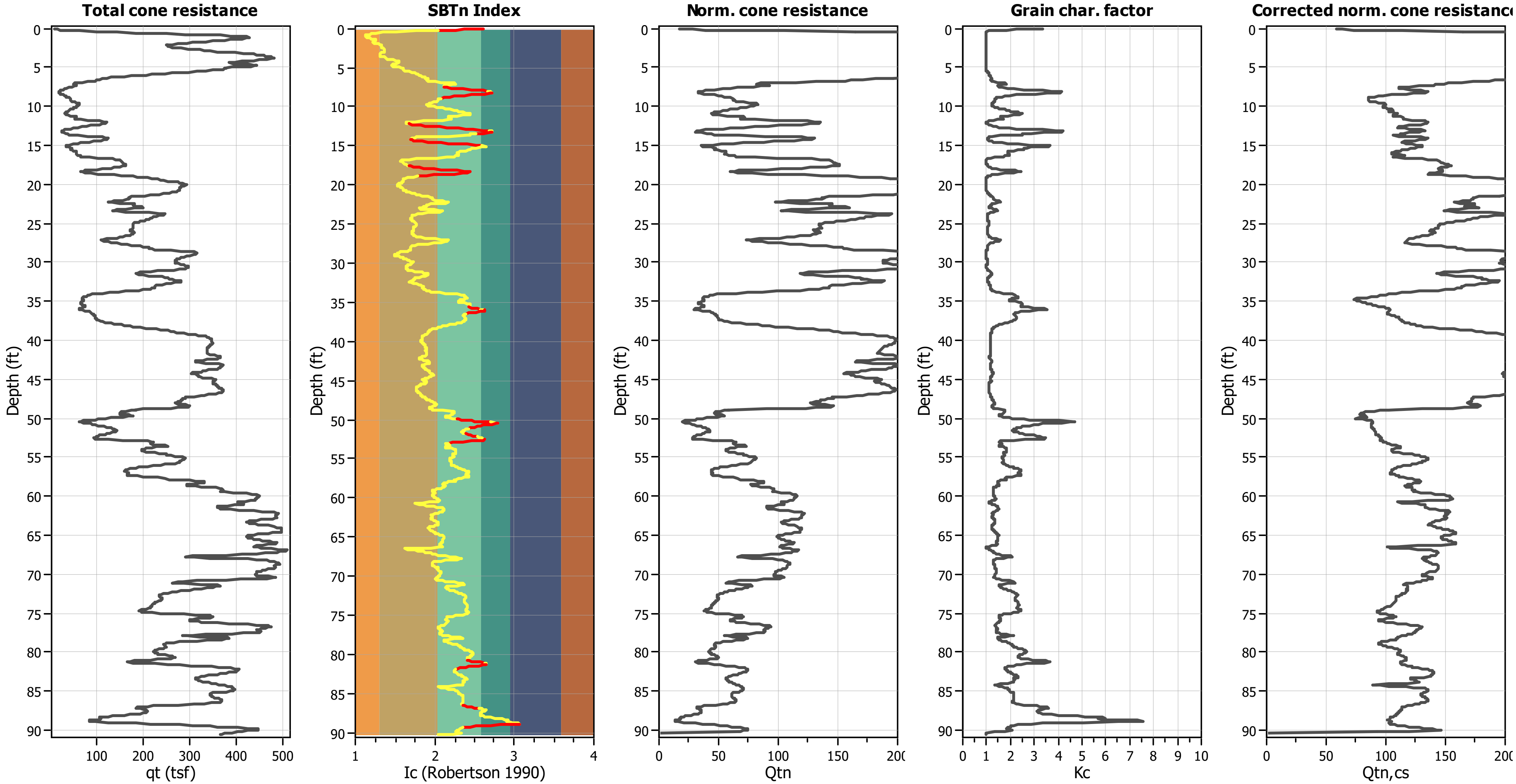
- 9. Very stiff fine grained

Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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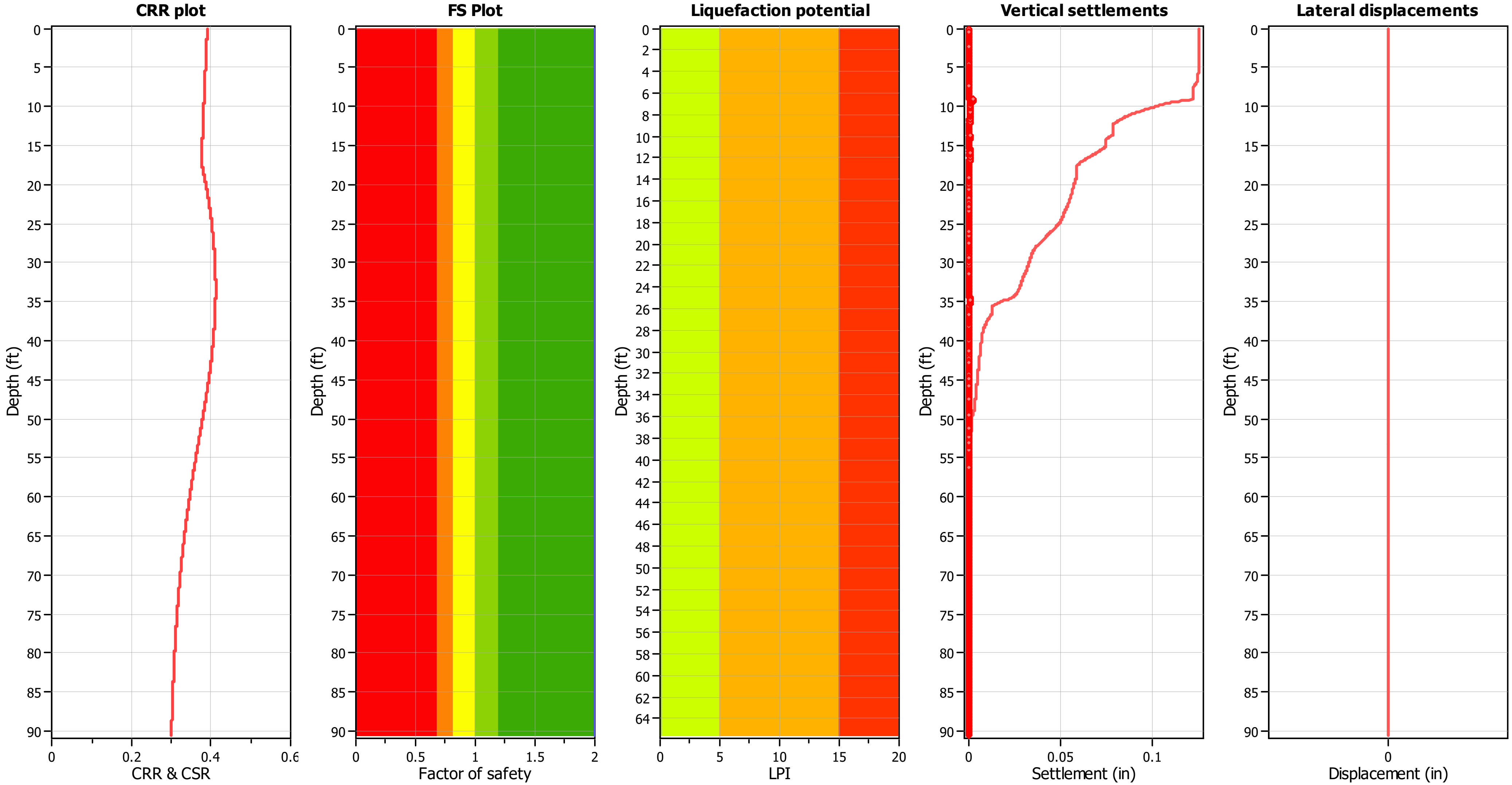
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
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Depth to water table (insitu):	200.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
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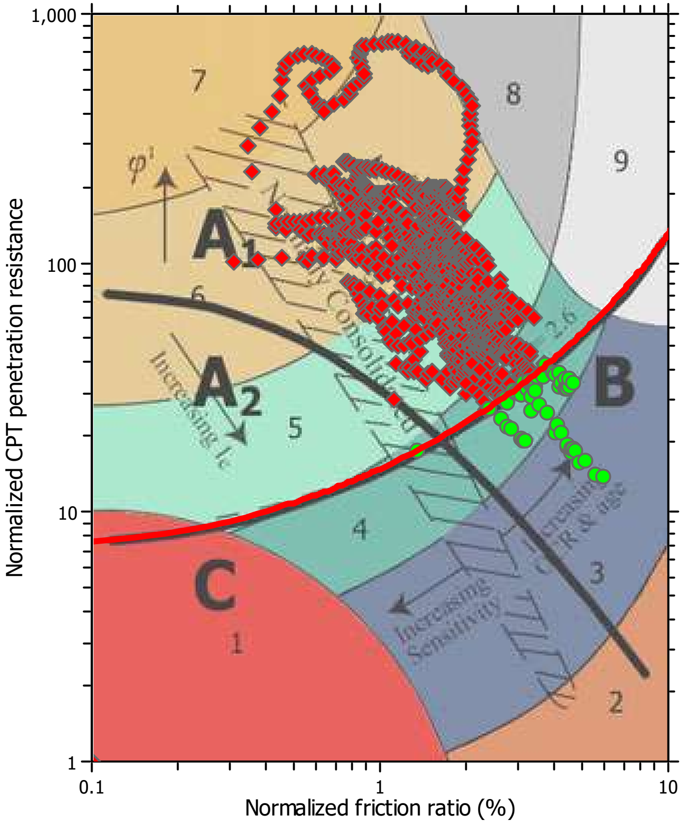
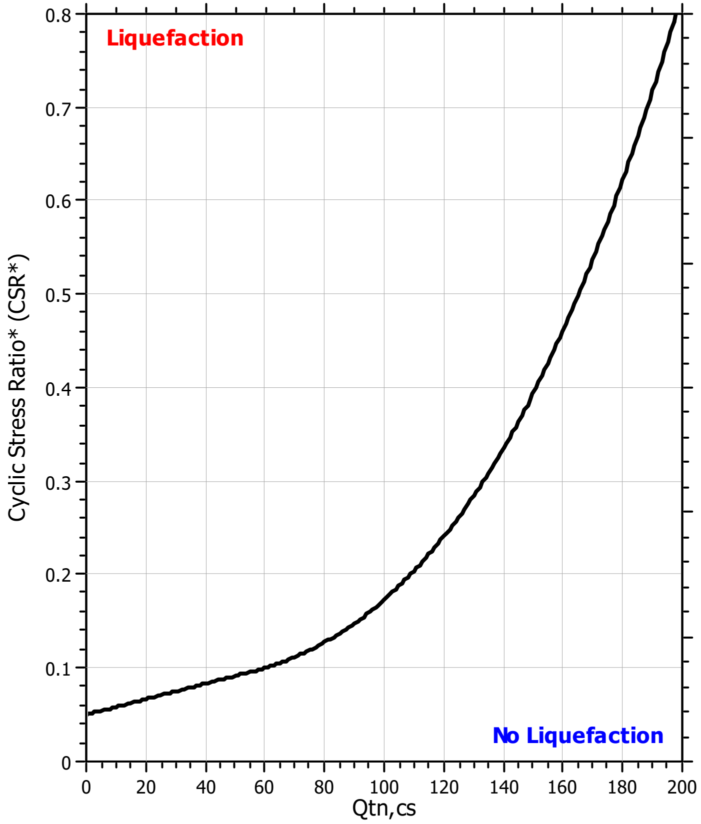
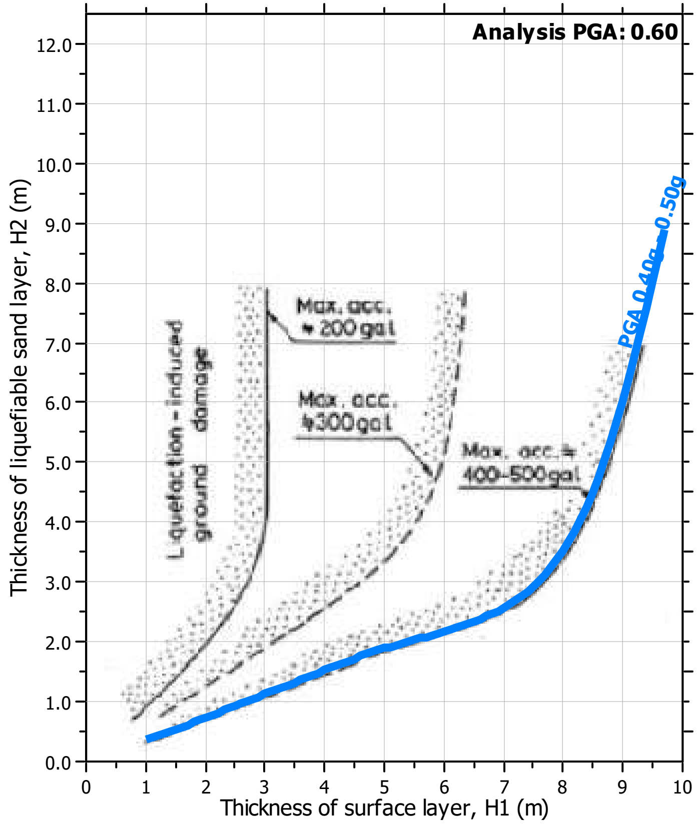
LPI color scheme
- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots







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Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
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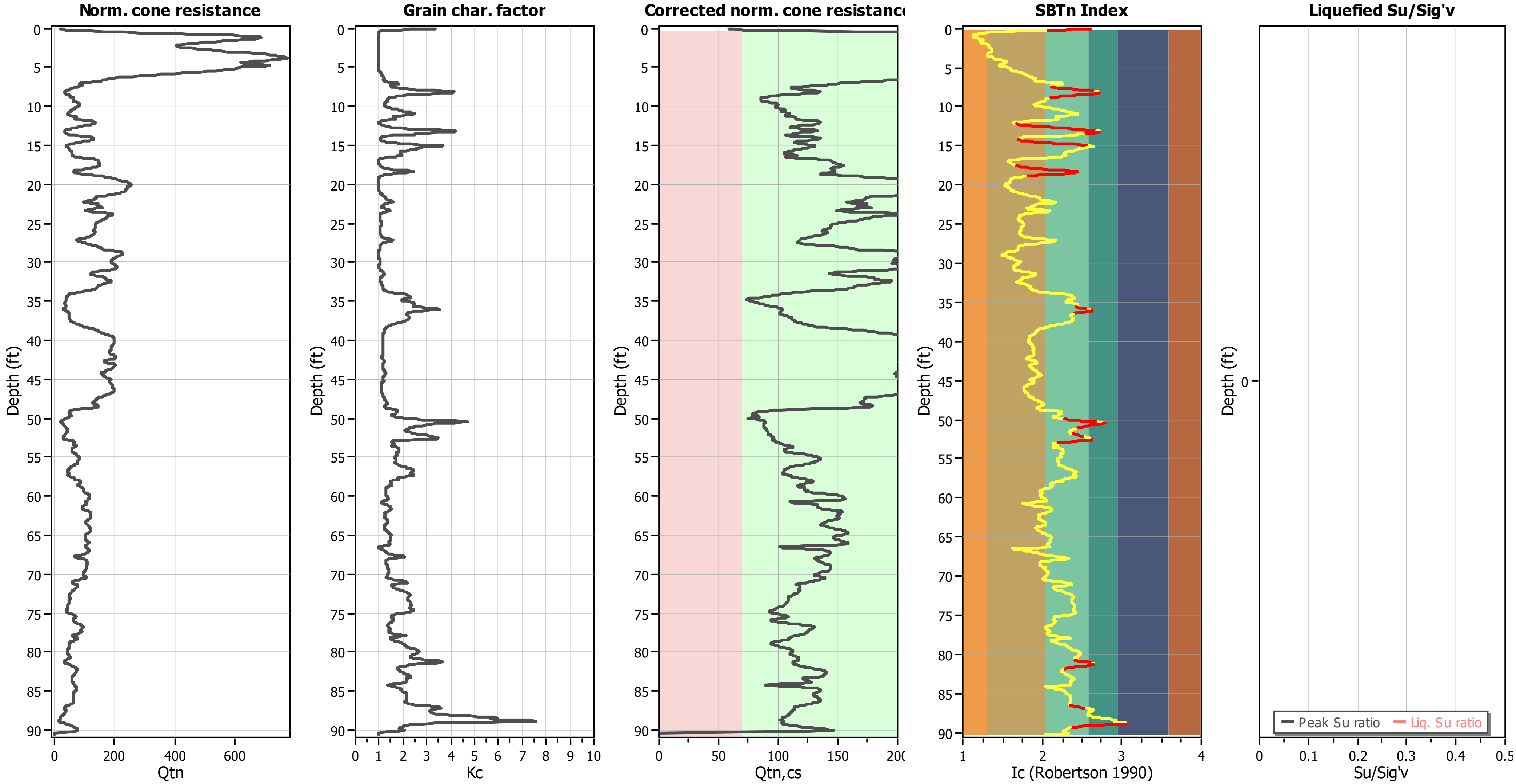
Check for strength loss plots (Robertson (2010))



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Analysis method:	NCEER (1998)	Depth to water table (erthq.):	200.00 ft	Fill weight:	N/A
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Peak ground acceleration:	0.60	Use fill:	No	Limit depth applied:	No
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APPENDIX E

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

Leighton

APPENDIX E

LEIGHTON CONSULTING, INC.
EARTHWORK AND GRADING GUIDE SPECIFICATIONS

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Leighton

E-1.0 GENERAL

E-1.1 <u>Intent</u>

These Earthwork and Grading Guide Specifications are for grading and earthwork shown on the current, approved grading plan(s) and/or indicated in the Leighton Consulting, Inc. geotechnical report(s). These Guide Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the project-specific recommendations in the geotechnical report shall supersede these Guide Specifications. Leighton Consulting, Inc. shall provide geotechnical observation and testing during earthwork and grading. Based on these observations and tests, Leighton Consulting, Inc. may provide new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

E-1.2 <u>Role of Leighton Consulting, Inc.</u>

Prior to commencement of earthwork and grading, Leighton Consulting, Inc. shall meet with the earthwork contractor to review the earthwork contractor's work plan, to schedule sufficient personnel to perform the appropriate level of observation, mapping and compaction testing. During earthwork and grading, Leighton Consulting, Inc. shall observe, map, and document subsurface exposures to verify geotechnical design assumptions. If observed conditions are found to be significantly different than the interpreted assumptions during the design phase, Leighton Consulting, Inc. shall inform the owner, recommend appropriate changes in design to accommodate these observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include (1) natural ground after clearing to receiving fill but before fill is placed, (2) bottoms of all "remedial removal" areas, (3) all key bottoms, and (4) benches made on sloping ground to receive fill.

Leighton Consulting, Inc. shall observe moisture-conditioning and processing of the subgrade and fill materials, and perform relative compaction testing of fill to determine the attained relative compaction. Leighton Consulting, Inc. shall provide *Daily Field Reports* to the owner and the Contractor on a routine and frequent basis.

E-1.3 <u>The Earthwork Contractor</u>

The earthwork contractor (Contractor) shall be qualified, experienced and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Guide

Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing grading and backfilling in accordance with the current, approved plans and specifications.

The Contractor shall inform the owner and Leighton Consulting, Inc. of changes in work schedules at least one working day in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that Leighton Consulting, Inc. is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish earthwork and grading in accordance with the applicable grading codes and agency ordinances, these Guide Specifications, and recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of Leighton Consulting, Inc., unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, adverse weather, etc., are resulting in a quality of work less than required in these specifications, Leighton Consulting, Inc. shall reject the work and may recommend to the owner that earthwork and grading be stopped until unsatisfactory condition(s) are rectified.

E-2.0 PREPARATION OF AREAS TO BE FILLED

E-2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies and Leighton Consulting, Inc.. Care should be taken not to encroach upon or otherwise damage native and/or historic trees designated by the Owner or appropriate agencies to remain. Pavements, flatwork or other construction should not extend under the “drip line” of designated trees to remain.

Leighton Consulting, Inc. shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 3 percent of organic materials (by dry weight: ASTM D 2974). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area. As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

E-2.2 Processing

Existing ground that has been declared satisfactory for support of fill, by Leighton Consulting, Inc., shall be scarified to a minimum depth of 6 inches (15 cm). Existing ground that is not satisfactory shall be over-excavated as specified in the following Section E-2.3. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

E-2.3 Overexcavation

In addition to removals and over-excavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by Leighton Consulting, Inc. during grading. All undocumented fill soils under proposed structure footprints should be excavated

E-2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), (>20 percent grade) the ground shall be stepped or benched. The lowest bench or key shall be a minimum of 15 feet (4.5 m) wide and at least 2 feet (0.6 m) deep, into competent material as evaluated by Leighton Consulting, Inc.. Other benches shall be excavated a minimum height of 4 feet (1.2 m) into competent material or as otherwise recommended by Leighton Consulting, Inc.. Fill placed on ground sloping flatter than 5:1 (horizontal to vertical units), (<20 percent grade) shall also be benched or otherwise over-excavated to provide a flat subgrade for the fill.

E-2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by Leighton Consulting, Inc. as suitable to receive fill. The Contractor shall obtain a written acceptance (*Daily Field Report*) from Leighton Consulting, Inc. prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys and benches.

E-3.0 FILL MATERIAL

E-3.1 Fill Quality

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by Leighton Consulting, Inc. prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to Leighton Consulting, Inc. or mixed with other soils to achieve satisfactory fill material.

E-3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 6 inches (15 cm), shall not be buried or placed in fill unless location, materials and placement methods are specifically accepted by Leighton Consulting, Inc.. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 feet (3 m) measured vertically from finish grade, or within 2 feet (0.61 m) of future utilities or underground construction.

E-3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section E-3.1, and be free of hazardous materials ("contaminants") and rock larger than 3-inches (8 cm) in largest dimension. All import soils shall have an Expansion Index (EI) of 20 or less and a sulfate content no greater than (≤) 500 parts-per-million (ppm). A representative sample of a potential import source shall be given to Leighton Consulting, Inc. at least four full working days before importing begins, so that suitability of this import material can be determined and appropriate tests performed.

E-4.0 FILL PLACEMENT AND COMPACTION

E-4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill, as described in Section E-2.0, above, in near-horizontal layers not exceeding 8 inches (20 cm) in loose thickness. Leighton Consulting, Inc. may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers, and only if the building officials with the appropriate jurisdiction approve. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

E-4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM) Test Method D 1557.

E-4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, each layer shall be uniformly compacted to not-less-than (≥) 90 percent of the maximum dry density as determined by ASTM Test Method D 1557. In some cases, structural fill may be specified (see project-specific geotechnical report) to be uniformly compacted to at-least (≥) 95 percent of the ASTM D 1557 modified Proctor laboratory maximum dry density. For fills thicker than (>) 15 feet (4.5 m), the portion of fill deeper than 15 feet below proposed finish grade shall be compacted to 95 percent of the ASTM D 1557 laboratory maximum density. Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

E-4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by back rolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet (1 to 1.2 m) in fill elevation, or by other methods producing satisfactory results acceptable to Leighton Consulting, Inc.. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of the ASTM D 1557 laboratory maximum density.

E-4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by Leighton Consulting, Inc.. Location and frequency of tests shall be at our field representative(s) discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

E-4.6 Compaction Test Locations

Leighton Consulting, Inc. shall document the approximate elevation and horizontal coordinates of each density test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that Leighton

Consulting, Inc. can determine the test locations with sufficient accuracy. Adequate grade stakes shall be provided.

E-5.0 EXCAVATION

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by Leighton Consulting, Inc. during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by Leighton Consulting, Inc. based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, then observed and reviewed by Leighton Consulting, Inc. prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by Leighton Consulting, Inc..

E-6.0 TRENCH BACKFILLS

E-6.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations. Work should be performed in accordance with Article 6 of the *California Construction Safety Orders*, 2009 Edition or more current (see also: http://www.dir.ca.gov/title8/sb4a6.html).

E-6.2 Bedding and Backfill

All utility trench bedding and backfill shall be performed in accordance with applicable provisions of the 2018 Edition of the *Standard Specifications for Public Works Construction* (Green Book). Bedding material shall have a Sand Equivalent greater than 30 (SE>30). Bedding shall be placed to 1-foot (0.3 m) over the top of the conduit, and densified by jetting in areas of granular soils, if allowed by the permitting agency. Otherwise, the pipe-bedding zone should be backfilled with Controlled Low Strength Material (CLSM) consisting of at least one sack of Portland cement per cubic-yard of sand, and conforming to Section 201-6 of the 2018 Edition of the *Standard Specifications for Public Works Construction* (Green Book). Backfill over the bedding zone shall be placed and densified mechanically to a minimum of 90 percent of relative compaction (ASTM D 1557) from 1 foot (0.3 m) above the top of the conduit to the surface. Backfill above the pipe zone shall **not** be jetted. Jetting of the bedding around the conduits shall be observed by Leighton Consulting, Inc. and backfill above the pipe zone (bedding) shall be observed and tested by Leighton Consulting, Inc..

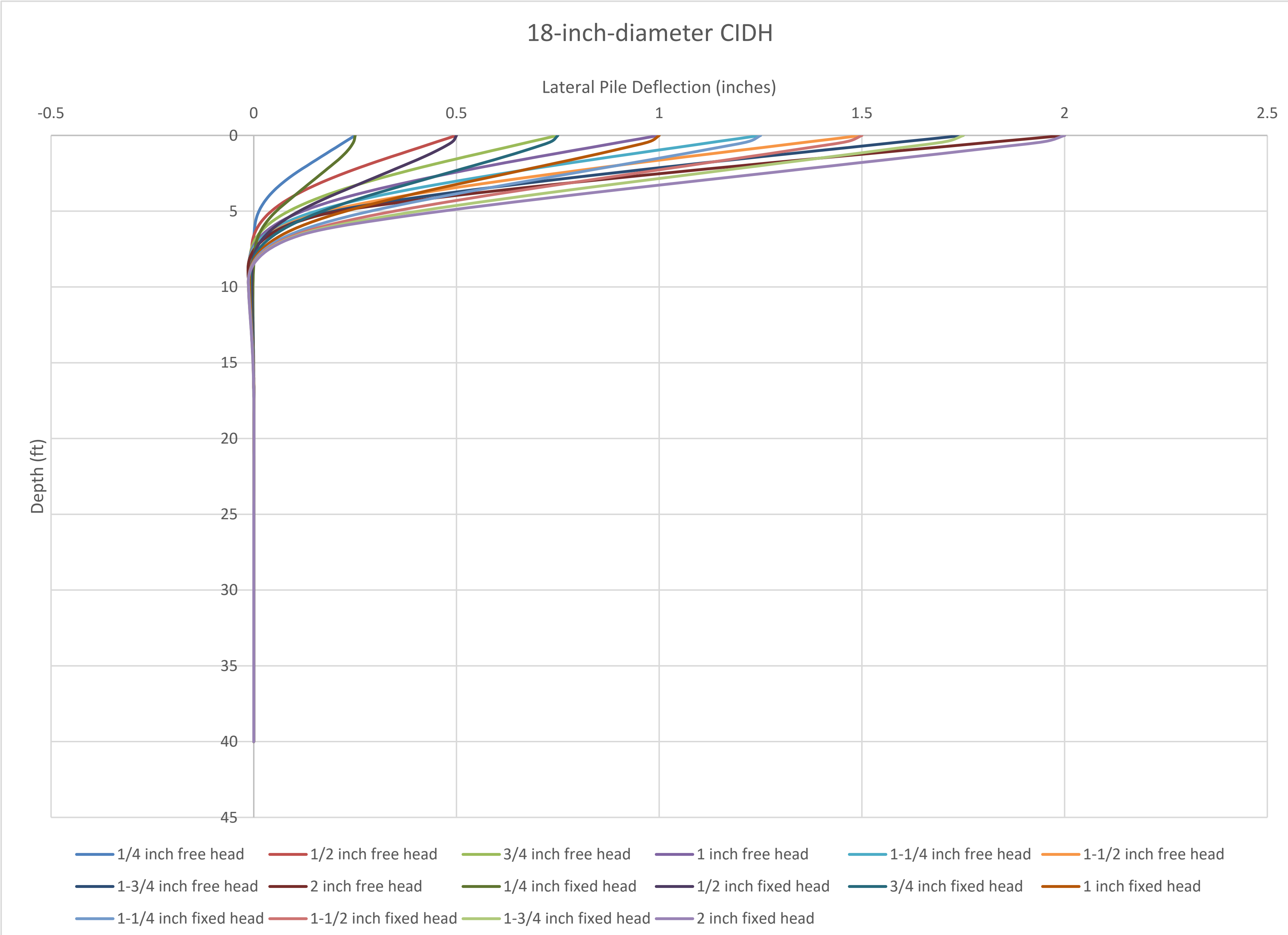
E-6.3 Lift Thickness

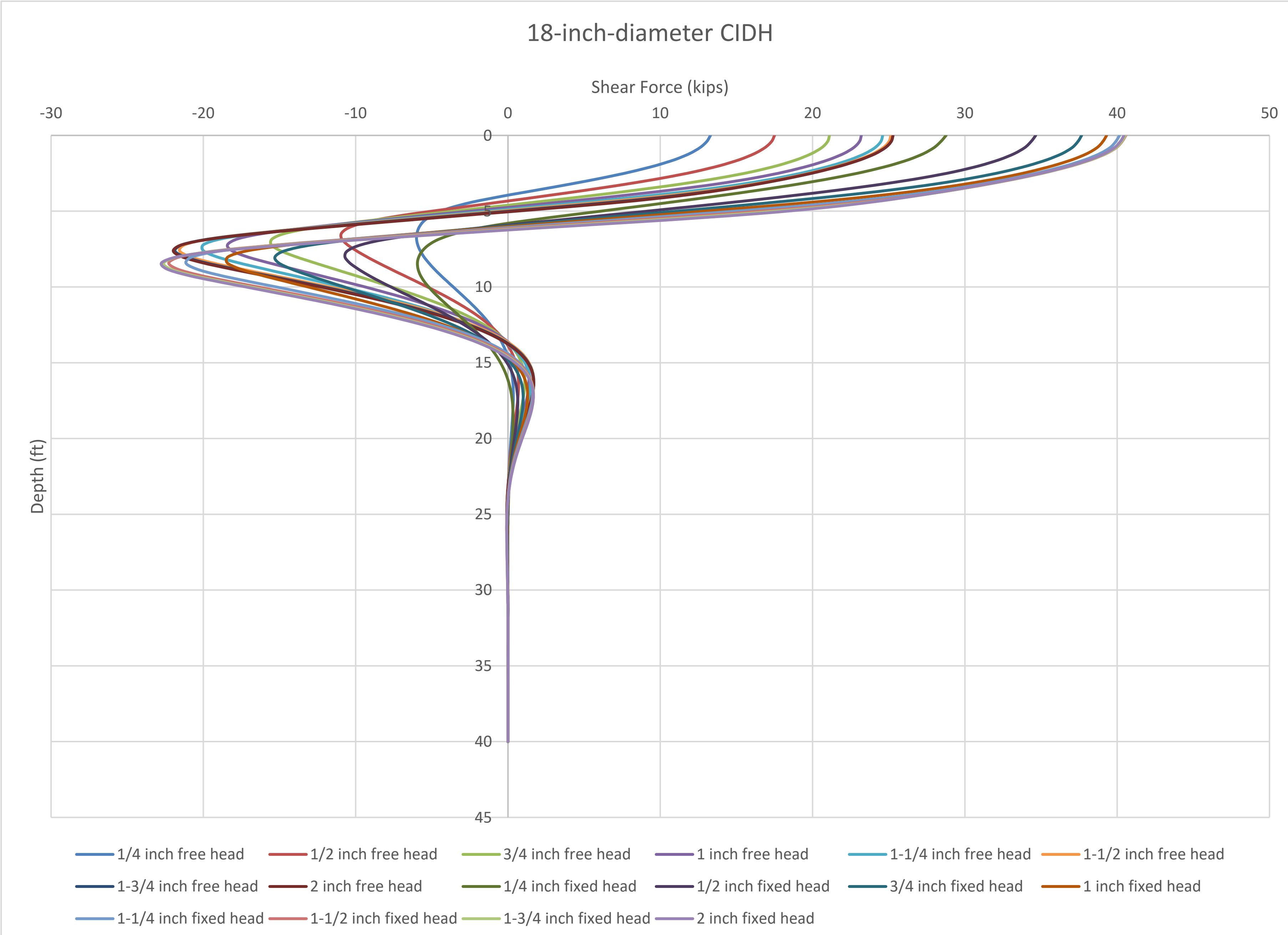
Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to Leighton Consulting, Inc. that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method, and only if the building officials with the appropriate jurisdiction approve.

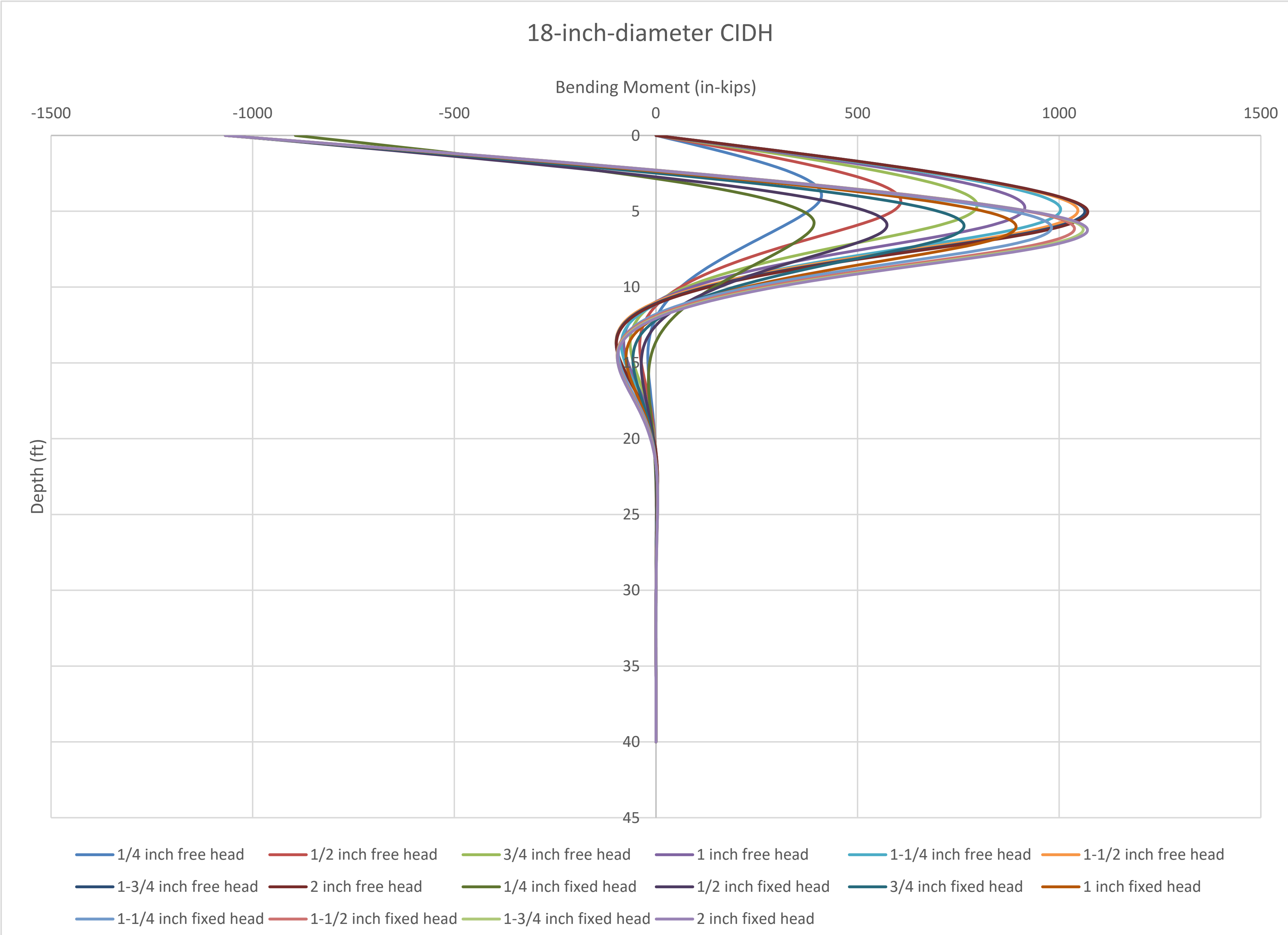
APPENDIX F

LATERAL PILE CAPACITIES

Leighton


18-inch-diameter CIDH
Lateral Pile Deflection (inches)
-0.5
0
0.5
1
1.5
2
2.5
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head


18-inch-diameter CIDH
Shear Force (kips)
-30
-20
-10
0
10
20
30
40
50
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head


18-inch-diameter CIDH
Bending Moment (in-kips)
-1500
-1000
-500
0
500
1000
1500
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head

```
================================================================================

               LPile for Windows(Beta), Version 2018-10.008

              Analysis of Individual Piles and Drilled Shafts
             Subjected to Lateral Loading Using the p-y Method
                       © 1985-2018 by Ensoft, Inc.
                           All Rights Reserved

================================================================================
```

This copy of LPile is being used by:

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Serial Number of Security Device: 158517314

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Use of this program by any entity other than Leighton Group, Irvine, CA
is a violation of the software license agreement.

```
--------------------------------------------------------------------------------
                         Files Used for Analysis
--------------------------------------------------------------------------------
```

Path to file locations:
\Users\ckim\Documents\riverside arena\

Name of input data file:
RsdArena 18 CIDH 20201028.lp10

Name of output report file:
RsdArena 18 CIDH 20201028.lp10

Name of plot output file:
RsdArena 18 CIDH 20201028.lp10

Name of runtime message file:
RsdArena 18 CIDH 20201028.lp10

```
--------------------------------------------------------------------------------
                        Date and Time of Analysis
```

Date: October 28, 2020   Time: 12:14:18

Problem Title

Project Name: Riverside Arena

Job Number: 12915.001

Client: CAA ICON

Engineer: ck

Description: 18 inch CIDH

Program Options and Settings

Computational Options:
- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed	=	500
- Deflection tolerance for convergence	=	1.0000E-05 in
- Maximum allowable deflection	=	100.0000 in
- Number of pile increments	=	100

Loading Type and Number of Cycles of Loading:
- Static loading specified

- Use of p-y modification factors for p-y curves not selected
- Analysis uses layering correction (Method of Georgiadis)

- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:
- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

```
Number of pile sections defined                         =            1
Total length of pile                                    =       40.000 ft
Depth of ground surface below top of pile               =       0.0000 ft
```

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	18.0000
2	40.000	18.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

```
   Section 1 is a round drilled shaft, bored pile, or CIDH pile
   Length of section                                    =    40.000000 ft
   Shaft Diameter                                       =    18.000000 in
```

Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is cemented silt with cohesion and friction

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	100.000000 ft
Effective unit weight at top of layer	=	120.000000 pcf
Effective unit weight at bottom of layer	=	120.000000 pcf
Undrained cohesion at top of layer	=	100.000000 psf
Undrained cohesion at bottom of layer	=	100.000000 psf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Epsilon-50 at top of layer	=	0.0000
Epsilon-50 at bottom of layer	=	0.0000
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Default values for Epsilon-50 will be computed for this layer.
NOTE: Default values for subgrade k will be computed for this layer.

(Depth of the lowest soil layer extends 60.000 ft below the pile tip)

Summary of Input Soil Properties

Layer Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Cemented	0.00	120.0000	100.0000	30.0000	default	default
	Silt	100.0000	120.0000	100.0000	30.0000	default	default

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 16

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	4	y = 0.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
2	4	y = 0.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
3	4	y = 0.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
4	4	y = 1.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
5	4	y = 1.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
6	4	y = 1.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
7	4	y = 1.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
8	4	y = 2.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
9	5	y = 0.250000 in	S = 0.0000 in/in	0.0000000	N.A.
10	5	y = 0.500000 in	S = 0.0000 in/in	0.0000000	N.A.
11	5	y = 0.750000 in	S = 0.0000 in/in	0.0000000	N.A.
12	5	y = 1.000000 in	S = 0.0000 in/in	0.0000000	N.A.
13	5	y = 1.250000 in	S = 0.0000 in/in	0.0000000	N.A.
14	5	y = 1.500000 in	S = 0.0000 in/in	0.0000000	N.A.
15	5	y = 1.750000 in	S = 0.0000 in/in	0.0000000	N.A.
16	5	y = 2.000000 in	S = 0.0000 in/in	0.0000000	N.A.

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with

specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	40.000000	ft
Shaft Diameter	=	18.000000	in
Concrete Cover Thickness (to edge of long. rebar)	=	3.000000	in
Number of Reinforcing Bars	=	6	bars
Yield Stress of Reinforcing Bars	=	60000.	psi
Modulus of Elasticity of Reinforcing Bars	=	29000000.	psi
Gross Area of Shaft	=	254.469005	sq. in.
Total Area of Reinforcing Steel	=	2.640000	sq. in.
Area Ratio of Steel Reinforcement	=	1.04	percent
Edge-to-Edge Bar Spacing	=	4.875000	in
Maximum Concrete Aggregate Size	=	0.750000	in
Ratio of Bar Spacing to Aggregate Size	=	6.50	
Offset of Center of Rebar Cage from Center of Pile	=	0.0000	in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	1228.673	kips
Tensile Load for Cracking of Concrete	=	-125.503	kips
Nominal Axial Tensile Capacity	=	-158.400	kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	0.750000	0.440000	5.625000	0.00000
2	0.750000	0.440000	2.812500	4.871393

3	0.750000	0.440000	-2.812500	4.871393
4	0.750000	0.440000	-5.625000	0.00000
5	0.750000	0.440000	-2.812500	-4.871393
6	0.750000	0.440000	2.812500	-4.871393

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 4.875 inches
between bars 4 and 5.

Ratio of bar spacing to maximum aggregate size = 6.50

Concrete Properties:

Compressive Strength of Concrete	=	5000. psi
Modulus of Elasticity of Concrete	=	4030509. psi
Modulus of Rupture of Concrete	=	-530.330086 psi
Compression Strain at Peak Stress	=	0.002109
Tensile Strain at Fracture of Concrete	=	-0.0001150
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
0.00000125	31.7609804	25408784.	8.9999617	0.00001125	-0.00001125	0.0526718	-0.3229889	
0.00000250	63.4120145	25364806.	8.9999616	0.00002250	-0.00002250	0.1050648	-0.6459778	
0.00000375	94.9531022	25320827.	8.9999615	0.00003375	-0.00003375	0.1571788	-0.9689667	
0.00000500	126.3842434	25276849.	8.9999614	0.00004500	-0.00004500	0.2090139	-1.2919556	
0.00000625	157.7054384	25232870.	8.9999613	0.00005625	-0.00005625	0.2605702	-1.6149445	
0.00000750	188.9166869	25188892.	8.9999612	0.00006750	-0.00006750	0.3118475	-1.9379334	
0.00000875	220.0179890	25144913.	8.9999612	0.00007875	-0.00007875	0.3628459	-2.2609223	
0.00001000	251.0093448	25100934.	8.9999611	0.00009000	-0.00009000	0.4135654	-2.5839112	
0.00001125	281.8907542	25056956.	8.9999610	0.0001012	-0.0001013	0.4640060	-2.9069002	
0.00001250	312.6622172	25012977.	8.9999609	0.0001125	-0.0001125	0.5141677	-3.2298891	
0.00001375	312.6622172	22739070.	4.2106000	0.00005790	-0.0001896	0.2650517	-5.4626357	C
0.00001500	312.6622172	20844148.	4.2115498	0.00006317	-0.0002068	0.2888550	-5.9588258	C
0.00001625	312.6622172	19240752.	4.2125010	0.00006845	-0.0002240	0.3126093	-6.4549464	C
0.00001750	312.6622172	17866412.	4.2134538	0.00007374	-0.0002413	0.3363146	-6.9509972	C
0.00001875	312.6622172	16675318.	4.2144080	0.00007902	-0.0002585	0.3599708	-7.4469781	C
0.00002000	312.6622172	15633111.	4.2153637	0.00008431	-0.0002757	0.3835778	-7.9428890	C
0.00002125	312.6622172	14713516.	4.2163210	0.00008960	-0.0002929	0.4071357	-8.4387296	C
0.00002250	312.6622172	13896099.	4.2172797	0.00009489	-0.0003101	0.4306443	-8.9344999	C
0.00002375	312.6622172	13164725.	4.2182400	0.0001002	-0.0003273	0.4541036	-9.4301996	C
0.00002500	312.6622172	12506489.	4.2192018	0.0001055	-0.0003445	0.4775134	-9.9258287	C
0.00002625	312.6622172	11910942.	4.2201651	0.0001108	-0.0003617	0.5008739	-10.4213868	C
0.00002750	312.6622172	11369535.	4.2211299	0.0001161	-0.0003789	0.5241848	-10.9168738	C
0.00002875	312.6622172	10875208.	4.2220963	0.0001214	-0.0003961	0.5474462	-11.4122897	C
0.00003000	312.6622172	10422074.	4.2230642	0.0001267	-0.0004133	0.5706580	-11.9076341	C
0.00003125	312.6622172	10005191.	4.2240336	0.0001320	-0.0004305	0.5938201	-12.4029069	C
0.00003250	312.6622172	9620376.	4.2250046	0.0001373	-0.0004477	0.6169325	-12.8981081	C
0.00003375	312.6622172	9264066.	4.2259772	0.0001426	-0.0004649	0.6399951	-13.3932373	C
0.00003500	312.6622172	8933206.	4.2269513	0.0001479	-0.0004821	0.6630078	-13.8882944	C
0.00003625	312.6622172	8625165.	4.2279269	0.0001533	-0.0004992	0.6859706	-14.3832792	C
0.00003750	312.6622172	8337659.	4.2289042	0.0001586	-0.0005164	0.7088834	-14.8781916	C
0.00003875	312.6622172	8068702.	4.2298830	0.0001639	-0.0005336	0.7317462	-15.3730314	C
0.00004000	312.6622172	7816555.	4.2308281	0.0001692	-0.0005508	0.7545527	-15.8678393	C
0.00004125	312.6622172	7579690.	4.2317698	0.0001746	-0.0005679	0.7773078	-16.3625828	C
0.00004250	312.6622172	7356758.	4.2327130	0.0001799	-0.0005851	0.8000123	-16.8572561	C
0.00004375	312.6622172	7146565.	4.2336577	0.0001852	-0.0006023	0.8226661	-17.3518592	C
0.00004500	312.6622172	6948049.	4.2346038	0.0001906	-0.0006194	0.8452691	-17.8463919	C
0.00004625	312.6622172	6760264.	4.2355514	0.0001959	-0.0006366	0.8678213	-18.3408540	C
0.00004750	312.6622172	6582362.	4.2365005	0.0002012	-0.0006538	0.8903225	-18.8352454	C
0.00004875	312.6622172	6413584.	4.2374511	0.0002066	-0.0006709	0.9127729	-19.3295659	C
0.00005125	312.6622172	6100726.	4.2393568	0.0002173	-0.0007052	0.9575205	-20.3179934	C

0.00005375	312.6622172	5816971.	4.2412684	0.0002280	-0.0007395	1.0020635	-21.3061353	C
0.00005625	312.6622172	5558439.	4.2431861	0.0002387	-0.0007738	1.0464015	-22.2939902	C
0.00005875	312.6622172	5321910.	4.2451098	0.0002494	-0.0008081	1.0905340	-23.2815566	C
0.00006125	312.6622172	5104689.	4.2470396	0.0002601	-0.0008424	1.1344604	-24.2688332	C
0.00006375	312.6622172	4904505.	4.2489757	0.0002709	-0.0008766	1.1781803	-25.2558187	C
0.00006625	312.6622172	4719430.	4.2509179	0.0002816	-0.0009109	1.2216932	-26.2425115	C
0.00006875	312.6622172	4547814.	4.2528663	0.0002924	-0.0009451	1.2649985	-27.2289102	C
0.00007125	312.6622172	4388242.	4.2548210	0.0003032	-0.0009793	1.3080956	-28.2150135	C
0.00007375	312.6622172	4239488.	4.2567820	0.0003139	-0.0010136	1.3509842	-29.2008198	C
0.00007625	312.6622172	4100488.	4.2587494	0.0003247	-0.0010478	1.3936637	-30.1863278	C
0.00007875	312.6622172	3970314.	4.2607232	0.0003355	-0.0010820	1.4361334	-31.1715358	C
0.00008125	312.6622172	3848150.	4.2627034	0.0003463	-0.0011162	1.4783930	-32.1564425	C
0.00008375	319.8386720	3818969.	4.2646901	0.0003572	-0.0011503	1.5204418	-33.1410462	C
0.00008625	329.2445371	3817328.	4.2666834	0.0003680	-0.0011845	1.5622794	-34.1253456	C
0.00008875	338.6417826	3815682.	4.2686832	0.0003788	-0.0012187	1.6039051	-35.1093390	C
0.00009125	348.0303709	3814031.	4.2706896	0.0003897	-0.0012528	1.6453185	-36.0930250	C
0.00009375	357.4102641	3812376.	4.2727027	0.0004006	-0.0012869	1.6865190	-37.0764019	C
0.00009625	366.7814240	3810716.	4.2747225	0.0004114	-0.0013211	1.7275060	-38.0594682	C
0.00009875	376.1438119	3809051.	4.2767491	0.0004223	-0.0013552	1.7682789	-39.0422222	C
0.0001013	385.4973892	3807382.	4.2787824	0.0004332	-0.0013893	1.8088372	-40.0246625	C
0.0001038	394.8421164	3805707.	4.2808227	0.0004441	-0.0014234	1.8491804	-41.0067873	C
0.0001063	404.1779541	3804028.	4.2828698	0.0004551	-0.0014574	1.8893078	-41.9885950	C
0.0001088	413.5048624	3802344.	4.2849238	0.0004660	-0.0014915	1.9292189	-42.9700840	C
0.0001113	422.8228010	3800654.	4.2869848	0.0004769	-0.0015256	1.9689131	-43.9512527	C
0.0001138	432.1317293	3798960.	4.2890529	0.0004879	-0.0015596	2.0083898	-44.9320992	C
0.0001163	441.4316063	3797261.	4.2911281	0.0004988	-0.0015937	2.0476485	-45.9126220	C
0.0001188	450.7223909	3795557.	4.2932103	0.0005098	-0.0016277	2.0866884	-46.8928194	C
0.0001213	460.0040412	3793848.	4.2952998	0.0005208	-0.0016617	2.1255091	-47.8726895	C
0.0001238	469.2765152	3792133.	4.2973966	0.0005318	-0.0016957	2.1641099	-48.8522306	C
0.0001263	478.5397705	3790414.	4.2995006	0.0005428	-0.0017297	2.2024902	-49.8314411	C
0.0001288	487.7937644	3788689.	4.3016119	0.0005538	-0.0017637	2.2406494	-50.8103190	C
0.0001313	497.0384535	3786960.	4.3037307	0.0005649	-0.0017976	2.2785869	-51.7888627	C
0.0001338	506.2737943	3785225.	4.3058569	0.0005759	-0.0018316	2.3163021	-52.7670702	C
0.0001363	515.4997429	3783484.	4.3079906	0.0005870	-0.0018655	2.3537942	-53.7449398	C
0.0001388	524.7162548	3781739.	4.3101318	0.0005980	-0.0018995	2.3910628	-54.7224697	C
0.0001413	533.9232853	3779988.	4.3122807	0.0006091	-0.0019334	2.4281072	-55.6996578	C
0.0001438	543.1207892	3778232.	4.3144372	0.0006202	-0.0019673	2.4649266	-56.6765025	C
0.0001463	552.3087208	3776470.	4.3166015	0.0006313	-0.0020012	2.5015206	-57.6530016	C
0.0001488	561.4870342	3774703.	4.3187735	0.0006424	-0.0020351	2.5378883	-58.6291535	C
0.0001588	598.1031977	3767579.	4.3275406	0.0006870	-0.0021705	2.6810843	-60.0000000	CY
0.0001688	634.5616473	3760365.	4.3364368	0.0007318	-0.0023057	2.8206075	-60.0000000	CY
0.0001788	670.8592451	3753059.	4.3454661	0.0007768	-0.0024407	2.9564137	-60.0000000	CY
0.0001888	706.9927037	3745657.	4.3546326	0.0008219	-0.0025756	3.0884569	-60.0000000	CY
0.0001988	742.9586041	3738156.	4.3639407	0.0008673	-0.0027102	3.2166894	-60.0000000	CY
0.0002088	778.7399610	3730491.	4.3733690	0.0009129	-0.0028446	3.3410472	-60.0000000	CY
0.0002188	808.8883785	3697775.	4.3725797	0.0009565	-0.0029810	3.4555222	-60.0000000	CY
0.0002288	823.5501626	3600219.	4.3439478	0.0009937	-0.0031238	3.5496453	-60.0000000	CY
0.0002388	834.5733818	3495595.	4.3116501	0.0010294	-0.0032681	3.6372276	-60.0000000	CY

0.0002488	845.5383035	3399149.	4.2823899	0.0010652	-0.0034123	3.7223453	-60.0000000	CY
0.0002588	856.4441028	3309929.	4.2558213	0.0011012	-0.0035563	3.8049763	-60.0000000	CY
0.0002688	867.2899344	3227125.	4.2316499	0.0011373	-0.0037002	3.8850980	-60.0000000	CY
0.0002788	878.0318481	3149890.	4.2084748	0.0011731	-0.0038444	3.9619953	-60.0000000	CY
0.0002888	888.7111490	3077788.	4.1872281	0.0012091	-0.0039884	4.0363395	-60.0000000	CY
0.0002988	899.3302859	3010311.	4.1678058	0.0012451	-0.0041324	4.1081620	-60.0000000	CY
0.0003088	909.8883691	2947007.	4.1500372	0.0012813	-0.0042762	4.1774383	-60.0000000	CY
0.0003188	920.3844569	2887481.	4.1337733	0.0013176	-0.0044199	4.2441432	-60.0000000	CY
0.0003288	930.8175804	2831384.	4.1188834	0.0013541	-0.0045634	4.3082508	-60.0000000	CY
0.0003388	941.1867423	2778411.	4.1052522	0.0013907	-0.0047068	4.3697346	-60.0000000	CY
0.0003488	951.4909152	2728289.	4.0927783	0.0014274	-0.0048501	4.4285672	-60.0000000	CY
0.0003588	961.7290408	2680778.	4.0813715	0.0014642	-0.0049933	4.4847209	-60.0000000	CY
0.0003688	971.9000278	2635661.	4.0709516	0.0015012	-0.0051363	4.5381667	-60.0000000	CY
0.0003788	982.0027506	2592747.	4.0614474	0.0015383	-0.0052792	4.5888751	-60.0000000	CY
0.0003888	992.0186481	2551816.	4.0527552	0.0015755	-0.0054220	4.6367960	-60.0000000	CY
0.0003988	1002.	2511623.	4.0434345	0.0016123	-0.0055652	4.6812404	-60.0000000	CY
0.0004088	1010.	2470317.	4.0318847	0.0016480	-0.0057095	4.7215585	-60.0000000	CY
0.0004188	1016.	2425334.	4.0155271	0.0016815	-0.0058560	4.7568102	-60.0000000	CY
0.0004288	1020.	2378520.	3.9961045	0.0017133	-0.0060042	4.7880776	-60.0000000	CY
0.0004388	1023.	2330678.	3.9744355	0.0017438	-0.0061537	4.8159465	-60.0000000	CY
0.0004488	1024.	2282284.	3.9510084	0.0017730	-0.0063045	4.8408190	-60.0000000	CY
0.0004588	1026.	2235874.	3.9287022	0.0018023	-0.0064552	4.8639225	-60.0000000	CY
0.0004688	1027.	2191386.	3.9075246	0.0018317	-0.0066058	4.8852749	-60.0000000	CY
0.0004788	1029.	2148709.	3.8874153	0.0018611	-0.0067564	4.9048637	-60.0000000	CY
0.0004888	1030.	2107709.	3.8681693	0.0018906	-0.0069069	4.9226317	-60.0000000	CY
0.0004988	1031.	2068115.	3.8484785	0.0019194	-0.0070581	4.9382453	-60.0000000	CY
0.0005088	1033.	2030034.	3.8297362	0.0019484	-0.0072091	4.9521423	-60.0000000	CY
0.0005188	1034.	1993378.	3.8118896	0.0019774	-0.0073601	4.9643062	-60.0000000	CY
0.0005288	1035.	1958065.	3.7948901	0.0020065	-0.0075110	4.9747204	-60.0000000	CY
0.0005388	1037.	1924021.	3.7786928	0.0020358	-0.0076617	4.9833680	-60.0000000	CY
0.0005488	1038.	1891174.	3.7632559	0.0020651	-0.0078124	4.9902314	-60.0000000	CY
0.0006088	1044.	1715809.	3.6842385	0.0022428	-0.0087147	4.9989544	60.0000000	CY
0.0006688	1050.	1569920.	3.6194164	0.0024205	-0.0096170	4.9952846	60.0000000	CY
0.0007288	1054.	1446834.	3.5707864	0.0026022	-0.0105153	4.9894240	60.0000000	CY
0.0007888	1058.	1341510.	3.5343060	0.0027877	-0.0114098	4.9882821	60.0000000	CY
0.0008488	1061.	1250284.	3.5067462	0.0029764	-0.0123011	4.9879485	60.0000000	CY
0.0009088	1064.	1170410.	3.4839796	0.0031661	-0.0131914	4.9999584	60.0000000	CYT
0.0009688	1066.	1099901.	3.4677224	0.0033594	-0.0140781	4.9962997	60.0000000	CYT
0.0010288	1067.	1037222.	3.4564042	0.0035558	-0.0149617	4.9818313	60.0000000	CYT
0.0010888	1068.	981124.	3.4490365	0.0037551	-0.0158424	4.9995697	60.0000000	CYT
0.0011488	1068.	929879.	3.4664207	0.0039821	-0.0166954	4.9906439	60.0000000	CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003

or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.000	1061.482	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	1061.	0.0000	689.963299	3749145.
1	0.70	1061.	0.0000	743.037399	3738140.
1	0.75	1061.	0.0000	796.111499	3711640.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 0.250000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch

0.00	0.2500	0.00	13293.	-0.00500	0.00	2.54E+10	-32.4105	311.1412	0.00
0.4000	0.2260	63432.	13050.	-0.00499	0.00	2.54E+10	-68.6437	1458.	0.00
0.8000	0.2021	125282.	12607.	-0.00498	0.00	2.53E+10	-115.8898	2753.	0.00
1.2000	0.1782	184462.	11915.	-0.00495	0.00	2.52E+10	-172.4474	4644.	0.00
1.6000	0.1546	239668.	10937.	-0.00491	0.00	2.51E+10	-235.1836	7303.	0.00
2.0000	0.1311	289456.	9654.	-0.00486	0.00	2.50E+10	-299.5584	10965.	0.00
2.4000	0.1080	332343.	8070.	-0.00462	0.00	3.82E+09	-360.2162	16016.	0.00
2.8000	0.08679	366930.	6213.	-0.00418	0.00	3.81E+09	-413.4568	22867.	0.00
3.2000	0.06784	391991.	4137.	-0.00370	0.00	3.81E+09	-451.4990	31946.	0.00
3.6000	0.05126	406649.	1928.	-0.00320	0.00	3.80E+09	-468.9008	43905.	0.00
4.0000	0.03715	410504.	-325.8568	-0.00268	0.00	3.80E+09	-470.3972	60777.	0.00
4.4000	0.02553	403521.	-2344.	-0.00217	0.00	3.80E+09	-370.6271	69696.	0.00
4.8000	0.01634	387998.	-3855.	-0.00167	0.00	3.81E+09	-258.8822	76032.	0.00
5.2000	0.00951	366511.	-4868.	-0.00119	0.00	3.81E+09	-163.1931	82368.	0.00
5.6000	0.00489	341264.	-5477.	-7.47E-04	0.00	3.82E+09	-90.4144	88704.	0.00
6.0000	0.00234	313934.	-5805.	-4.10E-04	0.00	6.16E+09	-46.2512	95040.	0.00
6.4000	9.53E-04	285539.	-5964.	-2.61E-04	0.00	2.51E+10	-20.1303	101376.	0.00
6.8000	-1.67E-04	256679.	-6003.	-2.09E-04	0.00	2.51E+10	3.7479	107712.	0.00
7.2000	-0.00105	227906.	-5934.	-1.63E-04	0.00	2.51E+10	24.9835	114048.	0.00
7.6000	-0.00173	199708.	-5771.	-1.22E-04	0.00	2.52E+10	43.3140	120384.	0.00
8.0000	-0.00222	172509.	-5526.	-8.62E-05	0.00	2.52E+10	58.6022	126720.	0.00
8.4000	-0.00255	146659.	-5215.	-5.59E-05	0.00	2.52E+10	70.8209	133056.	0.00
8.8000	-0.00276	122442.	-4853.	-3.03E-05	0.00	2.53E+10	80.0374	139392.	0.00
9.2000	-0.00285	100068.	-4454.	-9.19E-06	0.00	2.53E+10	86.3973	145728.	0.00
9.6000	-0.00284	79685.	-4030.	7.85E-06	0.00	2.53E+10	90.1084	152064.	0.00
10.0000	-0.00277	61378.	-3595.	2.12E-05	0.00	2.54E+10	91.4244	158400.	0.00
10.4000	-0.00264	45177.	-3158.	3.13E-05	0.00	2.54E+10	90.6321	164736.	0.00
10.8000	-0.00247	31065.	-2729.	3.85E-05	0.00	2.54E+10	88.0360	171072.	0.00
11.2000	-0.00227	18981.	-2316.	4.32E-05	0.00	2.54E+10	83.9483	177408.	0.00
11.6000	-0.00206	8831.	-1926.	4.58E-05	0.00	2.54E+10	78.6768	183744.	0.00
12.0000	-0.00183	494.1112	-1563.	4.67E-05	0.00	2.54E+10	72.5179	190080.	0.00
12.4000	-0.00161	-6172.	-1231.	4.62E-05	0.00	2.54E+10	65.7492	196416.	0.00
12.8000	-0.00139	-11324.	-932.5207	4.45E-05	0.00	2.54E+10	58.6243	202752.	0.00
13.2000	-0.00118	-15124.	-668.5373	4.20E-05	0.00	2.54E+10	51.3688	209088.	0.00
13.6000	-9.84E-04	-17742.	-439.2249	3.89E-05	0.00	2.54E+10	44.1780	215424.	0.00
14.0000	-8.06E-04	-19341.	-243.8794	3.54E-05	0.00	2.54E+10	37.2159	221760.	0.00
14.4000	-6.44E-04	-20083.	-81.0848	3.17E-05	0.00	2.54E+10	30.6152	228096.	0.00
14.8000	-5.01E-04	-20119.	51.1388	2.79E-05	0.00	2.54E+10	24.4780	234432.	0.00
15.2000	-3.76E-04	-19592.	155.1940	2.42E-05	0.00	2.54E+10	18.8783	240768.	0.00
15.6000	-2.69E-04	-18630.	233.7743	2.05E-05	0.00	2.54E+10	13.8636	247104.	0.00
16.0000	-1.79E-04	-17348.	289.7464	1.71E-05	0.00	2.54E+10	9.4581	253440.	0.00
16.4000	-1.05E-04	-15848.	326.0442	1.40E-05	0.00	2.54E+10	5.6660	259776.	0.00
16.8000	-4.46E-05	-14218.	345.5802	1.12E-05	0.00	2.54E+10	2.4740	266112.	0.00
17.2000	2.55E-06	-12530.	351.1704	8.64E-06	0.00	2.54E+10	-0.1448	272448.	0.00
17.6000	3.84E-05	-10846.	345.4753	6.44E-06	0.00	2.54E+10	-2.2282	278784.	0.00
18.0000	6.43E-05	-9214.	330.9551	4.54E-06	0.00	2.54E+10	-3.8219	285120.	0.00
18.4000	8.20E-05	-7669.	309.8379	2.95E-06	0.00	2.54E+10	-4.9769	291456.	0.00
18.8000	9.26E-05	-6239.	284.1004	1.63E-06	0.00	2.54E+10	-5.7470	297792.	0.00

19.2000	9.76E-05	-4942.	255.4591	5.77E-07	0.00	2.54E+10	-6.1868	304128.	0.00
19.6000	9.82E-05	-3787.	225.3708	-2.47E-07	0.00	2.54E+10	-6.3500	310464.	0.00
20.0000	9.53E-05	-2778.	195.0397	-8.67E-07	0.00	2.54E+10	-6.2879	316800.	0.00
20.4000	8.98E-05	-1915.	165.4320	-1.31E-06	0.00	2.54E+10	-6.0486	323136.	0.00
20.8000	8.27E-05	-1190.	137.2934	-1.60E-06	0.00	2.54E+10	-5.6758	329472.	0.00
21.2000	7.45E-05	-596.5671	111.1708	-1.77E-06	0.00	2.54E+10	-5.2086	335808.	0.00
21.6000	6.57E-05	-122.9503	87.4356	-1.84E-06	0.00	2.54E+10	-4.6811	342144.	0.00
22.0000	5.68E-05	242.8146	66.3075	-1.83E-06	0.00	2.54E+10	-4.1223	348480.	0.00
22.4000	4.81E-05	513.6020	47.8789	-1.76E-06	0.00	2.54E+10	-3.5563	354816.	0.00
22.8000	3.99E-05	702.4523	32.1379	-1.64E-06	0.00	2.54E+10	-3.0025	361152.	0.00
23.2000	3.23E-05	822.1261	18.9903	-1.50E-06	0.00	2.54E+10	-2.4757	367488.	0.00
23.6000	2.55E-05	884.7591	8.2796	-1.34E-06	0.00	2.54E+10	-1.9871	373824.	0.00
24.0000	1.95E-05	901.6101	-0.1949	-1.17E-06	0.00	2.54E+10	-1.5439	380160.	0.00
24.4000	1.43E-05	882.8886	-6.6621	-1.00E-06	0.00	2.54E+10	-1.1508	386496.	0.00
24.8000	9.89E-06	837.6536	-11.3664	-8.38E-07	0.00	2.54E+10	-0.8093	392832.	0.00
25.2000	6.25E-06	773.7713	-14.5556	-6.86E-07	0.00	2.54E+10	-0.5195	399168.	0.00
25.6000	3.31E-06	697.9200	-16.4726	-5.47E-07	0.00	2.54E+10	-0.2793	405504.	0.00
26.0000	9.98E-07	615.6340	-17.3484	-4.23E-07	0.00	2.54E+10	-0.08561	411840.	0.00
26.4000	-7.52E-07	531.3755	-17.3966	-3.14E-07	0.00	2.54E+10	0.06552	418176.	0.00
26.8000	-2.02E-06	448.6265	-16.8106	-2.22E-07	0.00	2.54E+10	0.1786	424512.	0.00
27.2000	-2.88E-06	369.9935	-15.7612	-1.44E-07	0.00	2.54E+10	0.2586	430848.	0.00
27.6000	-3.41E-06	297.3191	-14.3958	-8.14E-08	0.00	2.54E+10	0.3103	437184.	0.00
28.0000	-3.66E-06	231.7940	-12.8387	-3.15E-08	0.00	2.54E+10	0.3385	443520.	0.00
28.4000	-3.71E-06	174.0671	-11.1922	6.88E-09	0.00	2.54E+10	0.3476	449856.	0.00
28.8000	-3.60E-06	124.3489	-9.5375	3.51E-08	0.00	2.54E+10	0.3419	456192.	0.00
29.2000	-3.37E-06	82.5071	-7.9372	5.46E-08	0.00	2.54E+10	0.3250	462528.	0.00
29.6000	-3.07E-06	48.1523	-6.4369	6.69E-08	0.00	2.54E+10	0.3002	468864.	0.00
30.0000	-2.73E-06	20.7129	-5.0680	7.34E-08	0.00	2.54E+10	0.2702	475200.	0.00
30.4000	-2.37E-06	-0.5002	-3.8493	7.54E-08	0.00	2.54E+10	0.2375	481536.	0.00
30.8000	-2.01E-06	-16.2406	-2.7899	7.38E-08	0.00	2.54E+10	0.2039	487872.	0.00
31.2000	-1.66E-06	-27.2830	-1.8904	6.97E-08	0.00	2.54E+10	0.1709	494208.	0.00
31.6000	-1.34E-06	-34.3888	-1.1456	6.38E-08	0.00	2.54E+10	0.1395	500544.	0.00
32.0000	-1.05E-06	-38.2812	-0.5457	5.70E-08	0.00	2.54E+10	0.1105	506880.	0.00
32.4000	-7.90E-07	-39.6273	-0.07760	4.96E-08	0.00	2.54E+10	0.08452	513216.	0.00
32.8000	-5.70E-07	-39.0261	0.2734	4.22E-08	0.00	2.54E+10	0.06173	519552.	0.00
33.2000	-3.85E-07	-37.0028	0.5229	3.50E-08	0.00	2.54E+10	0.04223	525888.	0.00
33.6000	-2.34E-07	-34.0065	0.6866	2.83E-08	0.00	2.54E+10	0.02597	532224.	0.00
34.0000	-1.14E-07	-30.4119	0.7795	2.22E-08	0.00	2.54E+10	0.01277	538560.	0.00
34.4000	-2.09E-08	-26.5231	0.8159	1.68E-08	0.00	2.54E+10	0.00238	544896.	0.00
34.8000	4.78E-08	-22.5796	0.8084	1.22E-08	0.00	2.54E+10	-0.00549	551232.	0.00
35.2000	9.62E-08	-18.7626	0.7684	8.29E-09	0.00	2.54E+10	-0.01117	557568.	0.00
35.6000	1.27E-07	-15.2031	0.7056	5.09E-09	0.00	2.54E+10	-0.01498	563904.	0.00
36.0000	1.45E-07	-11.9885	0.6284	2.52E-09	0.00	2.54E+10	-0.01722	570240.	0.00
36.4000	1.52E-07	-9.1708	0.5433	5.18E-10	0.00	2.54E+10	-0.01821	576576.	0.00
36.8000	1.50E-07	-6.7728	0.4559	-9.87E-10	0.00	2.54E+10	-0.01821	582912.	0.00
37.2000	1.42E-07	-4.7943	0.3703	-2.08E-09	0.00	2.54E+10	-0.01745	589248.	0.00
37.6000	1.30E-07	-3.2180	0.2897	-2.84E-09	0.00	2.54E+10	-0.01613	595584.	0.00
38.0000	1.15E-07	-2.0132	0.2164	-3.33E-09	0.00	2.54E+10	-0.01441	601920.	0.00

38.4000	9.80E-08	-1.1405	0.1520	-3.63E-09	0.00	2.54E+10	-0.01242	608256.	0.00
38.8000	8.01E-08	-0.5539	0.09759	-3.79E-09	0.00	2.54E+10	-0.01025	614592.	0.00
39.2000	6.16E-08	-0.2036	0.05384	-3.86E-09	0.00	2.54E+10	-0.00797	620928.	0.00
39.6000	4.30E-08	-0.03705	0.02121	-3.88E-09	0.00	2.54E+10	-0.00562	627264.	0.00
40.0000	2.44E-08	0.00	0.00	-3.89E-09	0.00	2.54E+10	-0.00322	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```
Pile-head deflection               =     0.25000000 inches
Computed slope at pile head        =    -0.00500002 radians
Maximum bending moment             =        410504. inch-lbs
Maximum shear force                =         13293. lbs
Depth of maximum bending moment    =     4.00000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             17
Number of zero deflection points   =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                              =     0.500000 inches
Moment at pile head                                    =          0.0 in-lbs
Axial load at pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	0.00	17499.	-0.00957	0.00	2.54E+10	-17.5000	84.0000	0.00
0.4000	0.4540	83792.	17303.	-0.00957	0.00	2.54E+10	-64.1520	678.1962	0.00
0.8000	0.4082	166107.	16870.	-0.00954	0.00	2.52E+10	-116.1346	1366.	0.00
1.2000	0.3624	245746.	16176.	-0.00950	0.00	2.51E+10	-173.2491	2295.	0.00
1.6000	0.3169	321393.	15190.	-0.00928	0.00	3.82E+09	-237.3653	3595.	0.00
2.0000	0.2734	391571.	13878.	-0.00883	0.00	3.81E+09	-309.2726	5431.	0.00
2.4000	0.2322	454623.	12214.	-0.00829	0.00	3.79E+09	-384.2496	7944.	0.00

2.8000	0.1937	508823.	10193.	-0.00768	0.00	3.78E+09	-457.8124	11343.	0.00
3.2000	0.1584	552474.	7839.	-0.00701	0.00	3.78E+09	-523.0770	15852.	0.00
3.6000	0.1264	584074.	5208.	-0.00629	0.00	3.77E+09	-572.9010	21752.	0.00
4.0000	0.09802	602474.	2379.	-0.00553	0.00	3.77E+09	-605.8617	29668.	0.00
4.4000	0.07331	606915.	-555.8246	-0.00476	0.00	3.77E+09	-617.0967	40405.	0.00
4.8000	0.05231	597138.	-3519.	-0.00399	0.00	3.77E+09	-617.6209	56673.	0.00
5.2000	0.03496	573131.	-6437.	-0.00325	0.00	3.77E+09	-598.2225	82130.	0.00
5.6000	0.02112	535341.	-8809.	-0.00254	0.00	3.78E+09	-390.2057	88704.	0.00
6.0000	0.01053	488561.	-10246.	-0.00190	0.00	3.79E+09	-208.5084	95040.	0.00
6.4000	0.00292	436976.	-10895.	-0.00131	0.00	3.80E+09	-61.6198	101376.	0.00
6.8000	-0.00204	383972.	-10932.	-7.92E-04	0.00	3.81E+09	45.8832	107712.	0.00
7.2000	-0.00468	332025.	-10555.	-3.41E-04	0.00	3.82E+09	111.2825	114048.	0.00
7.6000	-0.00532	282643.	-9968.	-1.05E-04	0.00	2.51E+10	133.3819	120384.	0.00
8.0000	-0.00569	236333.	-9287.	-5.55E-05	0.00	2.51E+10	150.2954	126720.	0.00
8.4000	-0.00585	193486.	-8537.	-1.45E-05	0.00	2.52E+10	162.1895	133056.	0.00
8.8000	-0.00583	154376.	-7741.	1.86E-05	0.00	2.52E+10	169.3598	139392.	0.00
9.2000	-0.00567	119167.	-6922.	4.46E-05	0.00	2.53E+10	172.2009	145728.	0.00
9.6000	-0.00540	87927.	-6098.	6.43E-05	0.00	2.53E+10	171.1796	152064.	0.00
10.0000	-0.00505	60630.	-5286.	7.84E-05	0.00	2.54E+10	166.8098	158400.	0.00
10.4000	-0.00465	37177.	-4503.	8.76E-05	0.00	2.54E+10	159.6298	164736.	0.00
10.8000	-0.00421	17401.	-3759.	9.28E-05	0.00	2.54E+10	150.1822	171072.	0.00
11.2000	-0.00376	1086.	-3065.	9.45E-05	0.00	2.54E+10	138.9968	177408.	0.00
11.6000	-0.00331	-12027.	-2428.	9.35E-05	0.00	2.54E+10	126.5774	183744.	0.00
12.0000	-0.00286	-22223.	-1852.	9.02E-05	0.00	2.54E+10	113.3910	190080.	0.00
12.4000	-0.00244	-29807.	-1340.	8.53E-05	0.00	2.54E+10	99.8591	196416.	0.00
12.8000	-0.00204	-35090.	-893.4118	7.92E-05	0.00	2.54E+10	86.3520	202752.	0.00
13.2000	-0.00168	-38384.	-510.5207	7.22E-05	0.00	2.54E+10	73.1859	209088.	0.00
13.6000	-0.00135	-39991.	-189.3834	6.48E-05	0.00	2.54E+10	60.6213	215424.	0.00
14.0000	-0.00106	-40202.	73.3805	5.73E-05	0.00	2.54E+10	48.8637	221760.	0.00
14.4000	-8.01E-04	-39287.	282.0114	4.97E-05	0.00	2.54E+10	38.0659	228096.	0.00
14.8000	-5.80E-04	-37494.	441.3654	4.25E-05	0.00	2.54E+10	28.3316	234432.	0.00
15.2000	-3.93E-04	-35050.	556.6902	3.56E-05	0.00	2.54E+10	19.7204	240768.	0.00
15.6000	-2.38E-04	-32150.	633.4245	2.93E-05	0.00	2.54E+10	12.2523	247104.	0.00
16.0000	-1.12E-04	-28969.	677.0232	2.35E-05	0.00	2.54E+10	5.9139	253440.	0.00
16.4000	-1.23E-05	-25651.	692.8114	1.84E-05	0.00	2.54E+10	0.6645	259776.	0.00
16.8000	6.42E-05	-22318.	685.8655	1.38E-05	0.00	2.54E+10	-3.5586	266112.	0.00
17.2000	1.20E-04	-19067.	660.9209	9.91E-06	0.00	2.54E+10	-6.8350	272448.	0.00
17.6000	1.59E-04	-15973.	622.3035	6.60E-06	0.00	2.54E+10	-9.2556	278784.	0.00
18.0000	1.84E-04	-13092.	573.8849	3.86E-06	0.00	2.54E+10	-10.9188	285120.	0.00
18.4000	1.96E-04	-10464.	519.0585	1.63E-06	0.00	2.54E+10	-11.9256	291456.	0.00
18.8000	2.00E-04	-8109.	460.7322	-1.21E-07	0.00	2.54E+10	-12.3770	297792.	0.00
19.2000	1.95E-04	-6041.	401.3377	-1.46E-06	0.00	2.54E+10	-12.3707	304128.	0.00
19.6000	1.86E-04	-4257.	342.8508	-2.43E-06	0.00	2.54E+10	-11.9989	310464.	0.00
20.0000	1.72E-04	-2749.	286.8217	-3.09E-06	0.00	2.54E+10	-11.3466	316800.	0.00
20.4000	1.56E-04	-1503.	234.4123	-3.49E-06	0.00	2.54E+10	-10.4906	323136.	0.00
20.8000	1.38E-04	-498.8047	186.4382	-3.68E-06	0.00	2.54E+10	-9.4986	329472.	0.00
21.2000	1.20E-04	286.6743	143.4121	-3.70E-06	0.00	2.54E+10	-8.4289	335808.	0.00
21.6000	1.03E-04	877.9512	105.5895	-3.59E-06	0.00	2.54E+10	-7.3305	342144.	0.00

22.0000	8.60E-05	1300.	73.0126	-3.39E-06	0.00	2.54E+10	-6.2433	348480.	0.00
22.4000	7.03E-05	1579.	45.5518	-3.11E-06	0.00	2.54E+10	-5.1987	354816.	0.00
22.8000	5.61E-05	1738.	22.9455	-2.80E-06	0.00	2.54E+10	-4.2206	361152.	0.00
23.2000	4.34E-05	1799.	4.8350	-2.47E-06	0.00	2.54E+10	-3.3255	367488.	0.00
23.6000	3.24E-05	1784.	-9.2036	-2.13E-06	0.00	2.54E+10	-2.5240	373824.	0.00
24.0000	2.30E-05	1711.	-19.6328	-1.80E-06	0.00	2.54E+10	-1.8215	380160.	0.00
24.4000	1.51E-05	1596.	-26.9303	-1.49E-06	0.00	2.54E+10	-1.2191	386496.	0.00
24.8000	8.73E-06	1452.	-31.5707	-1.20E-06	0.00	2.54E+10	-0.7144	392832.	0.00
25.2000	3.63E-06	1292.	-34.0105	-9.39E-07	0.00	2.54E+10	-0.3022	399168.	0.00
25.6000	-2.88E-07	1126.	-34.6774	-7.11E-07	0.00	2.54E+10	0.02436	405504.	0.00
26.0000	-3.19E-06	959.5904	-33.9620	-5.14E-07	0.00	2.54E+10	0.2737	411840.	0.00
26.4000	-5.22E-06	799.7261	-32.2132	-3.48E-07	0.00	2.54E+10	0.4549	418176.	0.00
26.8000	-6.53E-06	650.3436	-29.7356	-2.11E-07	0.00	2.54E+10	0.5774	424512.	0.00
27.2000	-7.25E-06	514.2641	-26.7891	-1.01E-07	0.00	2.54E+10	0.6503	430848.	0.00
27.6000	-7.50E-06	393.1685	-23.5897	-1.51E-08	0.00	2.54E+10	0.6827	437184.	0.00
28.0000	-7.39E-06	287.8031	-20.3123	4.93E-08	0.00	2.54E+10	0.6828	443520.	0.00
28.4000	-7.02E-06	198.1700	-17.0939	9.52E-08	0.00	2.54E+10	0.6582	449856.	0.00
28.8000	-6.48E-06	123.7018	-14.0370	1.26E-07	0.00	2.54E+10	0.6155	456192.	0.00
29.2000	-5.82E-06	63.4149	-11.2144	1.43E-07	0.00	2.54E+10	0.5606	462528.	0.00
29.6000	-5.10E-06	16.0437	-8.6731	1.51E-07	0.00	2.54E+10	0.4983	468864.	0.00
30.0000	-4.37E-06	-19.8471	-6.4389	1.50E-07	0.00	2.54E+10	0.4327	475200.	0.00
30.4000	-3.66E-06	-45.7693	-4.5199	1.44E-07	0.00	2.54E+10	0.3669	481536.	0.00
30.8000	-2.99E-06	-63.2379	-2.9109	1.34E-07	0.00	2.54E+10	0.3035	487872.	0.00
31.2000	-2.37E-06	-73.7137	-1.5963	1.21E-07	0.00	2.54E+10	0.2442	494208.	0.00
31.6000	-1.82E-06	-78.5626	-0.5535	1.07E-07	0.00	2.54E+10	0.1903	500544.	0.00
32.0000	-1.35E-06	-79.0272	0.2451	9.17E-08	0.00	2.54E+10	0.1424	506880.	0.00
32.4000	-9.45E-07	-76.2098	0.8293	7.70E-08	0.00	2.54E+10	0.1010	513216.	0.00
32.8000	-6.09E-07	-71.0655	1.2300	6.31E-08	0.00	2.54E+10	0.06596	519552.	0.00
33.2000	-3.39E-07	-64.4014	1.4774	5.03E-08	0.00	2.54E+10	0.03710	525888.	0.00
33.6000	-1.26E-07	-56.8825	1.6001	3.89E-08	0.00	2.54E+10	0.01401	532224.	0.00
34.0000	3.45E-08	-49.0409	1.6244	2.89E-08	0.00	2.54E+10	-0.00387	538560.	0.00
34.4000	1.51E-07	-41.2883	1.5740	2.03E-08	0.00	2.54E+10	-0.01711	544896.	0.00
34.8000	2.30E-07	-33.9301	1.4697	1.32E-08	0.00	2.54E+10	-0.02637	551232.	0.00
35.2000	2.78E-07	-27.1794	1.3290	7.45E-09	0.00	2.54E+10	-0.03226	557568.	0.00
35.6000	3.01E-07	-21.1719	1.1666	2.89E-09	0.00	2.54E+10	-0.03538	563904.	0.00
36.0000	3.05E-07	-15.9796	0.9946	-6.24E-10	0.00	2.54E+10	-0.03628	570240.	0.00
36.4000	2.95E-07	-11.6233	0.8225	-3.23E-09	0.00	2.54E+10	-0.03546	576576.	0.00
36.8000	2.74E-07	-8.0839	0.6574	-5.09E-09	0.00	2.54E+10	-0.03332	582912.	0.00
37.2000	2.46E-07	-5.3123	0.5049	-6.36E-09	0.00	2.54E+10	-0.03023	589248.	0.00
37.6000	2.13E-07	-3.2372	0.3688	-7.17E-09	0.00	2.54E+10	-0.02647	595584.	0.00
38.0000	1.78E-07	-1.7721	0.2518	-7.64E-09	0.00	2.54E+10	-0.02226	601920.	0.00
38.4000	1.40E-07	-0.8199	0.1558	-7.88E-09	0.00	2.54E+10	-0.01775	608256.	0.00
38.8000	1.02E-07	-0.2765	0.08192	-7.99E-09	0.00	2.54E+10	-0.01304	614592.	0.00
39.2000	6.34E-08	-0.03349	0.03096	-8.02E-09	0.00	2.54E+10	-0.00820	620928.	0.00
39.6000	2.49E-08	0.02069	0.00349	-8.02E-09	0.00	2.54E+10	-0.00325	627264.	0.00
40.0000	-1.36E-08	0.00	0.00	-8.02E-09	0.00	2.54E+10	0.00180	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature rela-

tionships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

```
Pile-head deflection               =     0.50000000 inches
Computed slope at pile head        =    -0.00957465 radians
Maximum bending moment             =        606915. inch-lbs
Maximum shear force                =         17499. lbs
Depth of maximum bending moment    =     4.40000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             20
Number of zero deflection points   =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 3

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                              =     0.750000 inches
Moment at pile head                                    =          0.0 in-lbs
Axial load at pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	0.00	21108.	-0.01353	0.00	2.54E+10	0.00	0.00	0.00
0.4000	0.6850	101319.	20987.	-0.01352	0.00	2.54E+10	-50.3786	352.9945	0.00
0.8000	0.6202	201476.	20602.	-0.01349	0.00	2.52E+10	-110.1573	852.5795	0.00
1.2000	0.5555	299096.	19926.	-0.01345	0.00	2.50E+10	-171.5793	1483.	0.00
1.6000	0.4911	392763.	18949.	-0.01317	0.00	3.81E+09	-235.2612	2299.	0.00
2.0000	0.4291	481009.	17653.	-0.01262	0.00	3.79E+09	-304.7209	3409.	0.00
2.4000	0.3700	562235.	15998.	-0.01196	0.00	3.77E+09	-384.9383	4994.	0.00
2.8000	0.3143	634591.	13920.	-0.01119	0.00	3.76E+09	-481.0546	7347.	0.00
3.2000	0.2625	695864.	11395.	-0.01034	0.00	3.75E+09	-571.0850	10442.	0.00
3.6000	0.2150	743979.	8477.	-0.00942	0.00	3.74E+09	-644.6545	14391.	0.00
4.0000	0.1721	777242.	5245.	-0.00844	0.00	3.73E+09	-701.7854	19573.	0.00
4.4000	0.1340	794335.	1794.	-0.00743	0.00	3.71E+09	-736.1026	26370.	0.00
4.8000	0.1008	794468.	-1789.	-0.00640	0.00	3.71E+09	-756.8805	36042.	0.00
5.2000	0.07254	777163.	-5424.	-0.00539	0.00	3.73E+09	-757.7642	50142.	0.00

5.6000	0.04908	742399.	-8993.	-0.00441	0.00	3.74E+09	-729.3416	71328.	0.00
6.0000	0.03020	690831.	-12178.	-0.00349	0.00	3.75E+09	-597.8958	95040.	0.00
6.4000	0.01556	625488.	-14402.	-0.00265	0.00	3.76E+09	-328.6005	101376.	0.00
6.8000	0.00475	552573.	-15446.	-0.00190	0.00	3.78E+09	-106.6207	107712.	0.00
7.2000	-0.00268	477202.	-15549.	-0.00125	0.00	3.79E+09	63.7894	114048.	0.00
7.6000	-0.00722	403301.	-14962.	-6.90E-04	0.00	3.80E+09	181.0867	120384.	0.00
8.0000	-0.00931	333572.	-13937.	-2.26E-04	0.00	3.82E+09	245.8737	126720.	0.00
8.4000	-0.00939	269508.	-12722.	9.27E-06	0.00	2.51E+10	260.3659	133056.	0.00
8.8000	-0.00922	211442.	-11454.	5.52E-05	0.00	2.52E+10	267.8758	139392.	0.00
9.2000	-0.00886	159549.	-10165.	9.06E-05	0.00	2.52E+10	269.0617	145728.	0.00
9.6000	-0.00835	113855.	-8884.	1.17E-04	0.00	2.53E+10	264.6762	152064.	0.00
10.0000	-0.00774	74258.	-7636.	1.34E-04	0.00	2.53E+10	255.5276	158400.	0.00
10.4000	-0.00706	40550.	-6441.	1.45E-04	0.00	2.54E+10	242.4482	164736.	0.00
10.8000	-0.00635	12427.	-5316.	1.50E-04	0.00	2.54E+10	226.2649	171072.	0.00
11.2000	-0.00562	-10483.	-4274.	1.50E-04	0.00	2.54E+10	207.7757	177408.	0.00
11.6000	-0.00490	-28605.	-3325.	1.47E-04	0.00	2.54E+10	187.7311	183744.	0.00
12.0000	-0.00421	-42403.	-2474.	1.40E-04	0.00	2.54E+10	166.8195	190080.	0.00
12.4000	-0.00356	-52356.	-1724.	1.31E-04	0.00	2.54E+10	145.6570	196416.	0.00
12.8000	-0.00295	-58954.	-1075.	1.21E-04	0.00	2.54E+10	124.7785	202752.	0.00
13.2000	-0.00240	-62677.	-524.4659	1.09E-04	0.00	2.54E+10	104.6338	209088.	0.00
13.6000	-0.00191	-63989.	-67.9360	9.71E-05	0.00	2.54E+10	85.5870	215424.	0.00
14.0000	-0.00147	-63329.	300.4774	8.50E-05	0.00	2.54E+10	67.9186	221760.	0.00
14.4000	-0.00109	-61104.	587.8751	7.33E-05	0.00	2.54E+10	51.8304	228096.	0.00
14.8000	-7.67E-04	-57685.	802.1509	6.20E-05	0.00	2.54E+10	37.4512	234432.	0.00
15.2000	-4.95E-04	-53404.	951.6613	5.15E-05	0.00	2.54E+10	24.8448	240768.	0.00
15.6000	-2.72E-04	-48549.	1045.	4.19E-05	0.00	2.54E+10	14.0180	247104.	0.00
16.0000	-9.34E-05	-43372.	1090.	3.32E-05	0.00	2.54E+10	4.9297	253440.	0.00
16.4000	4.62E-05	-38081.	1096.	2.55E-05	0.00	2.54E+10	-2.5006	259776.	0.00
16.8000	1.51E-04	-32848.	1070.	1.88E-05	0.00	2.54E+10	-8.3838	266112.	0.00
17.2000	2.26E-04	-27808.	1019.	1.30E-05	0.00	2.54E+10	-12.8534	272448.	0.00
17.6000	2.76E-04	-23065.	949.7596	8.24E-06	0.00	2.54E+10	-16.0570	278784.	0.00
18.0000	3.06E-04	-18691.	867.6618	4.30E-06	0.00	2.54E+10	-18.1504	285120.	0.00
18.4000	3.18E-04	-14735.	777.8013	1.14E-06	0.00	2.54E+10	-19.2915	291456.	0.00
18.8000	3.17E-04	-11224.	684.3759	-1.31E-06	0.00	2.54E+10	-19.6357	297792.	0.00
19.2000	3.05E-04	-8165.	590.8535	-3.14E-06	0.00	2.54E+10	-19.3319	304128.	0.00
19.6000	2.86E-04	-5552.	500.0107	-4.44E-06	0.00	2.54E+10	-18.5192	310464.	0.00
20.0000	2.62E-04	-3365.	413.9856	-5.28E-06	0.00	2.54E+10	-17.3246	316800.	0.00
20.4000	2.36E-04	-1577.	334.3385	-5.75E-06	0.00	2.54E+10	-15.8617	323136.	0.00
20.8000	2.07E-04	-155.2566	262.1192	-5.91E-06	0.00	2.54E+10	-14.2296	329472.	0.00
21.2000	1.79E-04	938.9902	197.9368	-5.84E-06	0.00	2.54E+10	-12.5130	335808.	0.00
21.6000	1.51E-04	1745.	142.0288	-5.58E-06	0.00	2.54E+10	-10.7820	342144.	0.00
22.0000	1.25E-04	2302.	94.3289	-5.20E-06	0.00	2.54E+10	-9.0930	348480.	0.00
22.4000	1.01E-04	2650.	54.5308	-4.73E-06	0.00	2.54E+10	-7.4896	354816.	0.00
22.8000	7.98E-05	2826.	22.1464	-4.22E-06	0.00	2.54E+10	-6.0039	361152.	0.00
23.2000	6.08E-05	2863.	-3.4410	-3.68E-06	0.00	2.54E+10	-4.6575	367488.	0.00
23.6000	4.45E-05	2793.	-22.9311	-3.15E-06	0.00	2.54E+10	-3.4633	373824.	0.00
24.0000	3.06E-05	2643.	-37.0667	-2.63E-06	0.00	2.54E+10	-2.4265	380160.	0.00
24.4000	1.92E-05	2437.	-46.6009	-2.15E-06	0.00	2.54E+10	-1.5461	386496.	0.00

24.8000	9.98E-06	2196.	-52.2709	-1.71E-06	0.00	2.54E+10	-0.8164	392832.	0.00
25.2000	2.74E-06	1935.	-54.7772	-1.32E-06	0.00	2.54E+10	-0.2279	399168.	0.00
25.6000	-2.74E-06	1670.	-54.7685	-9.84E-07	0.00	2.54E+10	0.2315	405504.	0.00
26.0000	-6.71E-06	1410.	-52.8320	-6.93E-07	0.00	2.54E+10	0.5754	411840.	0.00
26.4000	-9.39E-06	1163.	-49.4868	-4.50E-07	0.00	2.54E+10	0.8184	418176.	0.00
26.8000	-1.10E-05	934.4363	-45.1816	-2.52E-07	0.00	2.54E+10	0.9754	424512.	0.00
27.2000	-1.18E-05	728.8006	-40.2955	-9.51E-08	0.00	2.54E+10	1.0605	430848.	0.00
27.6000	-1.19E-05	547.5993	-35.1401	2.55E-08	0.00	2.54E+10	1.0876	437184.	0.00
28.0000	-1.16E-05	391.4560	-29.9641	1.14E-07	0.00	2.54E+10	1.0691	443520.	0.00
28.4000	-1.08E-05	259.9444	-24.9590	1.76E-07	0.00	2.54E+10	1.0163	449856.	0.00
28.8000	-9.88E-06	151.8495	-20.2655	2.15E-07	0.00	2.54E+10	0.9393	456192.	0.00
29.2000	-8.78E-06	65.3959	-15.9798	2.35E-07	0.00	2.54E+10	0.8464	462528.	0.00
29.6000	-7.63E-06	-1.5561	-12.1606	2.41E-07	0.00	2.54E+10	0.7449	468864.	0.00
30.0000	-6.47E-06	-51.3463	-8.8360	2.36E-07	0.00	2.54E+10	0.6404	475200.	0.00
30.4000	-5.36E-06	-86.3819	-6.0090	2.23E-07	0.00	2.54E+10	0.5375	481536.	0.00
30.8000	-4.33E-06	-109.0326	-3.6636	2.05E-07	0.00	2.54E+10	0.4397	487872.	0.00
31.2000	-3.39E-06	-121.5527	-1.7700	1.83E-07	0.00	2.54E+10	0.3493	494208.	0.00
31.6000	-2.57E-06	-126.0242	-0.2884	1.60E-07	0.00	2.54E+10	0.2680	500544.	0.00
32.0000	-1.86E-06	-124.3214	0.8264	1.36E-07	0.00	2.54E+10	0.1965	506880.	0.00
32.4000	-1.27E-06	-118.0905	1.6227	1.13E-07	0.00	2.54E+10	0.1353	513216.	0.00
32.8000	-7.76E-07	-108.7431	2.1490	9.16E-08	0.00	2.54E+10	0.08401	519552.	0.00
33.2000	-3.86E-07	-97.4600	2.4521	7.21E-08	0.00	2.54E+10	0.04227	525888.	0.00
33.6000	-8.39E-08	-85.2030	2.5759	5.49E-08	0.00	2.54E+10	0.00930	532224.	0.00
34.0000	1.41E-07	-72.7317	2.5603	3.99E-08	0.00	2.54E+10	-0.01580	538560.	0.00
34.4000	3.00E-07	-60.6243	2.4408	2.73E-08	0.00	2.54E+10	-0.03400	544896.	0.00
34.8000	4.03E-07	-49.3003	2.2480	1.70E-08	0.00	2.54E+10	-0.04631	551232.	0.00
35.2000	4.62E-07	-39.0433	2.0080	8.62E-09	0.00	2.54E+10	-0.05371	557568.	0.00
35.6000	4.86E-07	-30.0237	1.7421	2.09E-09	0.00	2.54E+10	-0.05709	563904.	0.00
36.0000	4.82E-07	-22.3195	1.4675	-2.85E-09	0.00	2.54E+10	-0.05731	570240.	0.00
36.4000	4.59E-07	-15.9359	1.1977	-6.47E-09	0.00	2.54E+10	-0.05509	576576.	0.00
36.8000	4.20E-07	-10.8214	0.9430	-8.99E-09	0.00	2.54E+10	-0.05105	582912.	0.00
37.2000	3.72E-07	-6.8832	0.7108	-1.07E-08	0.00	2.54E+10	-0.04570	589248.	0.00
37.6000	3.18E-07	-3.9979	0.5064	-1.17E-08	0.00	2.54E+10	-0.03945	595584.	0.00
38.0000	2.60E-07	-2.0216	0.3335	-1.23E-08	0.00	2.54E+10	-0.03261	601920.	0.00
38.4000	2.00E-07	-0.7966	0.1943	-1.25E-08	0.00	2.54E+10	-0.02538	608256.	0.00
38.8000	1.40E-07	-0.1563	0.09044	-1.26E-08	0.00	2.54E+10	-0.01790	614592.	0.00
39.2000	7.91E-08	0.07168	0.02292	-1.26E-08	0.00	2.54E+10	-0.01024	620928.	0.00
39.6000	1.86E-08	0.06379	-0.00747	-1.26E-08	0.00	2.54E+10	-0.00243	627264.	0.00
40.0000	-4.19E-08	0.00	0.00	-1.26E-08	0.00	2.54E+10	0.00554	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 3:

Pile-head deflection	=	0.75000000 inches
Computed slope at pile head	=	-0.01353218 radians
Maximum bending moment	=	794468. inch-lbs
Maximum shear force	=	21108. lbs
Depth of maximum bending moment	=	4.80000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	39
Number of zero deflection points	=	5

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 4

Pile-head conditions are Displacement and Moment (Loading Type 4)

Displacement of pile head	=	1.000000 inches
Moment at pile head	=	0.0 in-lbs
Axial load at pile head	=	0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	0.00	23198.	-0.01779	0.00	2.54E+10	0.00	0.00	0.00
0.4000	0.9146	111352.	23077.	-0.01778	0.00	2.54E+10	-50.3785	264.4003	0.00
0.8000	0.8293	221544.	22696.	-0.01775	0.00	2.51E+10	-108.6112	628.6633	0.00
1.2000	0.7442	329233.	22026.	-0.01752	0.00	3.82E+09	-170.5429	1100.	0.00
1.6000	0.6610	432992.	21057.	-0.01704	0.00	3.80E+09	-233.2000	1693.	0.00
2.0000	0.5805	531379.	19782.	-0.01643	0.00	3.78E+09	-297.8923	2463.	0.00
2.4000	0.5033	622903.	18179.	-0.01570	0.00	3.76E+09	-370.1955	3531.	0.00
2.8000	0.4298	705897.	16193.	-0.01485	0.00	3.75E+09	-457.3661	5107.	0.00
3.2000	0.3607	778353.	13742.	-0.01390	0.00	3.73E+09	-563.9044	7503.	0.00
3.6000	0.2964	837817.	10727.	-0.01281	0.00	3.47E+09	-692.2868	11209.	0.00
4.0000	0.2377	881331.	7233.	-0.01156	0.00	3.13E+09	-763.4840	15416.	0.00
4.4000	0.1855	907254.	3458.	-0.01015	0.00	2.96E+09	-809.4822	20948.	0.00
4.8000	0.1403	914526.	-497.3097	-0.00866	0.00	2.92E+09	-838.5111	28686.	0.00
5.2000	0.1023	902480.	-4543.	-0.00719	0.00	2.99E+09	-847.0408	39728.	0.00
5.6000	0.07133	870917.	-8562.	-0.00581	0.00	3.20E+09	-827.8964	55714.	0.00
6.0000	0.04658	820280.	-12411.	-0.00461	0.00	3.62E+09	-775.5291	79911.	0.00
6.4000	0.02706	751774.	-15644.	-0.00358	0.00	3.74E+09	-571.5132	101376.	0.00
6.8000	0.01217	670101.	-17671.	-0.00267	0.00	3.75E+09	-273.1648	107712.	0.00
7.2000	0.00140	582134.	-18406.	-0.00187	0.00	3.77E+09	-33.2532	114048.	0.00
7.6000	-0.00582	493401.	-18136.	-0.00119	0.00	3.79E+09	145.8881	120384.	0.00
8.0000	-0.01003	408029.	-17150.	-6.21E-04	0.00	3.80E+09	264.8454	126720.	0.00

8.4000	-0.01178	328760.	-15731.	-1.57E-04	0.00	3.82E+09	326.4126	133056.	0.00
8.8000	-0.01153	257011.	-14144.	7.48E-05	0.00	2.51E+10	334.9602	139392.	0.00
9.2000	-0.01106	192979.	-12534.	1.18E-04	0.00	2.52E+10	335.7069	145728.	0.00
9.6000	-0.01040	136682.	-10937.	1.49E-04	0.00	2.53E+10	329.6010	152064.	0.00
10.0000	-0.00963	87979.	-9384.	1.70E-04	0.00	2.53E+10	317.6560	158400.	0.00
10.4000	-0.00877	46595.	-7900.	1.83E-04	0.00	2.54E+10	300.9100	164736.	0.00
10.8000	-0.00787	12143.	-6504.	1.89E-04	0.00	2.54E+10	280.3909	171072.	0.00
11.2000	-0.00696	-15848.	-5214.	1.88E-04	0.00	2.54E+10	257.0877	177408.	0.00
11.6000	-0.00606	-37915.	-4041.	1.83E-04	0.00	2.54E+10	231.9282	183744.	0.00
12.0000	-0.00520	-54639.	-2990.	1.75E-04	0.00	2.54E+10	205.7627	190080.	0.00
12.4000	-0.00438	-66623.	-2066.	1.63E-04	0.00	2.54E+10	179.3499	196416.	0.00
12.8000	-0.00363	-74474.	-1268.	1.50E-04	0.00	2.53E+10	153.3474	202752.	0.00
13.2000	-0.00295	-78792.	-591.6408	1.35E-04	0.00	2.53E+10	128.3073	209088.	0.00
13.6000	-0.00233	-80154.	-32.4848	1.20E-04	0.00	2.53E+10	104.6744	215424.	0.00
14.0000	-0.00179	-79104.	417.4299	1.05E-04	0.00	2.53E+10	82.7900	221760.	0.00
14.4000	-0.00132	-76146.	767.0794	9.04E-05	0.00	2.53E+10	62.8972	228096.	0.00
14.8000	-9.24E-04	-71740.	1026.	7.64E-05	0.00	2.53E+10	45.1489	234432.	0.00
15.2000	-5.90E-04	-66293.	1206.	6.33E-05	0.00	2.54E+10	29.6174	240768.	0.00
15.6000	-3.17E-04	-60164.	1316.	5.13E-05	0.00	2.54E+10	16.3050	247104.	0.00
16.0000	-9.76E-05	-53659.	1368.	4.06E-05	0.00	2.54E+10	5.1550	253440.	0.00
16.4000	7.27E-05	-47035.	1370.	3.10E-05	0.00	2.54E+10	-3.9363	259776.	0.00
16.8000	2.00E-04	-40502.	1334.	2.28E-05	0.00	2.54E+10	-11.1102	266112.	0.00
17.2000	2.91E-04	-34225.	1268.	1.57E-05	0.00	2.54E+10	-16.5350	272448.	0.00
17.6000	3.51E-04	-28329.	1179.	9.80E-06	0.00	2.54E+10	-20.3968	278784.	0.00
18.0000	3.85E-04	-22903.	1075.	4.96E-06	0.00	2.54E+10	-22.8908	285120.	0.00
18.4000	3.99E-04	-18005.	962.4341	1.09E-06	0.00	2.54E+10	-24.2140	291456.	0.00
18.8000	3.96E-04	-13664.	845.3770	-1.90E-06	0.00	2.54E+10	-24.5598	297792.	0.00
19.2000	3.81E-04	-9889.	728.5628	-4.12E-06	0.00	2.54E+10	-24.1128	304128.	0.00
19.6000	3.56E-04	-6670.	615.3832	-5.69E-06	0.00	2.54E+10	-23.0454	310464.	0.00
20.0000	3.26E-04	-3981.	508.4386	-6.69E-06	0.00	2.54E+10	-21.5148	316800.	0.00
20.4000	2.92E-04	-1789.	409.6165	-7.24E-06	0.00	2.54E+10	-19.6611	323136.	0.00
20.8000	2.57E-04	-49.1245	320.1742	-7.41E-06	0.00	2.54E+10	-17.6065	329472.	0.00
21.2000	2.21E-04	1285.	240.8266	-7.29E-06	0.00	2.54E+10	-15.4550	335808.	0.00
21.6000	1.86E-04	2263.	171.8328	-6.96E-06	0.00	2.54E+10	-13.2925	342144.	0.00
22.0000	1.54E-04	2934.	113.0796	-6.47E-06	0.00	2.54E+10	-11.1881	348480.	0.00
22.4000	1.24E-04	3348.	64.1605	-5.87E-06	0.00	2.54E+10	-9.1949	354816.	0.00
22.8000	9.77E-05	3550.	24.4488	-5.22E-06	0.00	2.54E+10	-7.3517	361152.	0.00
23.2000	7.42E-05	3583.	-6.8380	-4.55E-06	0.00	2.54E+10	-5.6845	367488.	0.00
23.6000	5.40E-05	3485.	-30.5812	-3.88E-06	0.00	2.54E+10	-4.2085	373824.	0.00
24.0000	3.70E-05	3290.	-47.7119	-3.24E-06	0.00	2.54E+10	-2.9293	380160.	0.00
24.4000	2.29E-05	3027.	-59.1711	-2.65E-06	0.00	2.54E+10	-1.8453	386496.	0.00
24.8000	1.16E-05	2721.	-65.8771	-2.10E-06	0.00	2.54E+10	-0.9488	392832.	0.00
25.2000	2.74E-06	2394.	-68.7007	-1.62E-06	0.00	2.54E+10	-0.2276	399168.	0.00
25.6000	-3.95E-06	2062.	-68.4466	-1.20E-06	0.00	2.54E+10	0.3335	405504.	0.00
26.0000	-8.76E-06	1737.	-65.8417	-8.39E-07	0.00	2.54E+10	0.7519	411840.	0.00
26.4000	-1.20E-05	1430.	-61.5274	-5.40E-07	0.00	2.54E+10	1.0457	418176.	0.00
26.8000	-1.39E-05	1147.	-56.0572	-2.97E-07	0.00	2.54E+10	1.2335	424512.	0.00
27.2000	-1.49E-05	891.7050	-49.8976	-1.04E-07	0.00	2.54E+10	1.3330	430848.	0.00

27.6000	-1.49E-05	667.5531	-43.4311	4.32E-08	0.00	2.54E+10	1.3613	437184.	0.00
28.0000	-1.44E-05	474.7661	-36.9625	1.51E-07	0.00	2.54E+10	1.3339	443520.	0.00
28.4000	-1.35E-05	312.7132	-30.7253	2.25E-07	0.00	2.54E+10	1.2649	449856.	0.00
28.8000	-1.23E-05	179.8028	-24.8904	2.72E-07	0.00	2.54E+10	1.1664	456192.	0.00
29.2000	-1.09E-05	73.7651	-19.5738	2.96E-07	0.00	2.54E+10	1.0489	462528.	0.00
29.6000	-9.43E-06	-8.1060	-14.8455	3.02E-07	0.00	2.54E+10	0.9212	468864.	0.00
30.0000	-7.98E-06	-68.7516	-10.7373	2.95E-07	0.00	2.54E+10	0.7905	475200.	0.00
30.4000	-6.60E-06	-111.1842	-7.2509	2.78E-07	0.00	2.54E+10	0.6622	481536.	0.00
30.8000	-5.32E-06	-138.3605	-4.3647	2.54E-07	0.00	2.54E+10	0.5404	487872.	0.00
31.2000	-4.16E-06	-153.0852	-2.0399	2.27E-07	0.00	2.54E+10	0.4282	494208.	0.00
31.6000	-3.14E-06	-157.9434	-0.2262	1.97E-07	0.00	2.54E+10	0.3274	500544.	0.00
32.0000	-2.26E-06	-155.2572	1.1335	1.68E-07	0.00	2.54E+10	0.2391	506880.	0.00
32.4000	-1.53E-06	-147.0621	2.0997	1.39E-07	0.00	2.54E+10	0.1635	513216.	0.00
32.8000	-9.27E-07	-135.1001	2.7330	1.13E-07	0.00	2.54E+10	0.1004	519552.	0.00
33.2000	-4.48E-07	-120.8256	3.0917	8.84E-08	0.00	2.54E+10	0.04909	525888.	0.00
33.6000	-7.84E-08	-105.4200	3.2304	6.71E-08	0.00	2.54E+10	0.00869	532224.	0.00
34.0000	1.96E-07	-89.8142	3.1985	4.86E-08	0.00	2.54E+10	-0.02196	538560.	0.00
34.4000	3.88E-07	-74.7144	3.0400	3.31E-08	0.00	2.54E+10	-0.04409	544896.	0.00
34.8000	5.13E-07	-60.6304	2.7927	2.03E-08	0.00	2.54E+10	-0.05895	551232.	0.00
35.2000	5.83E-07	-47.9045	2.4886	1.00E-08	0.00	2.54E+10	-0.06775	557568.	0.00
35.6000	6.10E-07	-36.7397	2.1541	2.05E-09	0.00	2.54E+10	-0.07163	563904.	0.00
36.0000	6.03E-07	-27.2252	1.8103	-3.99E-09	0.00	2.54E+10	-0.07163	570240.	0.00
36.4000	5.71E-07	-19.3610	1.4736	-8.39E-09	0.00	2.54E+10	-0.06864	576576.	0.00
36.8000	5.22E-07	-13.0782	1.1567	-1.15E-08	0.00	2.54E+10	-0.06343	582912.	0.00
37.2000	4.61E-07	-8.2570	0.8685	-1.35E-08	0.00	2.54E+10	-0.05665	589248.	0.00
37.6000	3.93E-07	-4.7409	0.6155	-1.47E-08	0.00	2.54E+10	-0.04877	595584.	0.00
38.0000	3.20E-07	-2.3484	0.4020	-1.54E-08	0.00	2.54E+10	-0.04017	601920.	0.00
38.4000	2.45E-07	-0.8814	0.2310	-1.57E-08	0.00	2.54E+10	-0.03111	608256.	0.00
38.8000	1.70E-07	-0.1311	0.1041	-1.58E-08	0.00	2.54E+10	-0.02175	614592.	0.00
39.2000	9.41E-08	0.1181	0.02270	-1.58E-08	0.00	2.54E+10	-0.01217	620928.	0.00
39.6000	1.85E-08	0.08684	-0.01230	-1.58E-08	0.00	2.54E+10	-0.00241	627264.	0.00
40.0000	-5.71E-08	0.00	0.00	-1.57E-08	0.00	2.54E+10	0.00754	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 4:

```
Pile-head deflection             =     1.00000000 inches
Computed slope at pile head      =    -0.01779452 radians
Maximum bending moment           =        914526. inch-lbs
Maximum shear force              =         23198. lbs
Depth of maximum bending moment  =     4.80000000 feet below pile head
```

```
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             17
Number of zero deflection points =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 5

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                               =     1.250000 inches
Moment at pile head                                     =          0.0 in-lbs
Axial load at pile head                                 =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	0.00	24602.	-0.02180	0.00	2.54E+10	0.00	0.00	0.00
0.4000	1.1454	118087.	24481.	-0.02179	0.00	2.54E+10	-50.3785	211.1255	0.00
0.8000	1.0408	235014.	24099.	-0.02175	0.00	2.51E+10	-108.6112	500.8744	0.00
1.2000	0.9365	349438.	23429.	-0.02151	0.00	3.81E+09	-170.5429	874.0742	0.00
1.6000	0.8343	459933.	22460.	-0.02100	0.00	3.79E+09	-233.0310	1341.	0.00
2.0000	0.7349	565059.	21196.	-0.02035	0.00	3.77E+09	-293.6366	1918.	0.00
2.4000	0.6390	663419.	19639.	-0.01957	0.00	3.75E+09	-355.1953	2668.	0.00
2.8000	0.5471	753596.	17747.	-0.01866	0.00	3.74E+09	-433.3354	3802.	0.00
3.2000	0.4599	833789.	15434.	-0.01760	0.00	3.50E+09	-530.3620	5536.	0.00
3.6000	0.3781	901762.	12592.	-0.01631	0.00	3.00E+09	-653.9748	8302.	0.00
4.0000	0.3033	954667.	9081.	-0.01474	0.00	2.71E+09	-808.9439	12802.	0.00
4.4000	0.2366	988935.	5053.	-0.01297	0.00	2.56E+09	-869.1717	17633.	0.00
4.8000	0.1788	1003177.	797.7080	-0.01108	0.00	2.50E+09	-903.8897	24269.	0.00
5.2000	0.1302	996593.	-3569.	-0.00918	0.00	2.53E+09	-915.6689	33761.	0.00
5.6000	0.09066	968912.	-7922.	-0.00736	0.00	2.65E+09	-898.0580	47545.	0.00
6.0000	0.05957	920540.	-12109.	-0.00571	0.00	2.89E+09	-846.4153	68201.	0.00
6.4000	0.03582	852667.	-15956.	-0.00433	0.00	3.34E+09	-756.5898	101376.	0.00
6.8000	0.01796	767361.	-18739.	-0.00323	0.00	3.73E+09	-402.9564	107712.	0.00
7.2000	0.00483	672772.	-19981.	-0.00231	0.00	3.75E+09	-114.6909	114048.	0.00
7.6000	-0.00417	575540.	-20006.	-0.00151	0.00	3.77E+09	104.6427	120384.	0.00
8.0000	-0.00966	480719.	-19143.	-8.38E-04	0.00	3.79E+09	254.9224	126720.	0.00
8.4000	-0.01222	391771.	-17718.	-2.87E-04	0.00	3.81E+09	338.6716	133056.	0.00
8.8000	-0.01241	310627.	-16040.	2.16E-05	0.00	1.22E+10	360.3157	139392.	0.00
9.2000	-0.01201	237784.	-14301.	1.06E-04	0.00	2.51E+10	364.6174	145728.	0.00
9.6000	-0.01139	173342.	-12559.	1.45E-04	0.00	2.52E+10	360.9592	152064.	0.00
10.0000	-0.01062	117216.	-10852.	1.72E-04	0.00	2.53E+10	350.4470	158400.	0.00
10.4000	-0.00974	69165.	-9209.	1.90E-04	0.00	2.54E+10	334.2253	164736.	0.00
10.8000	-0.00879	28814.	-7654.	1.99E-04	0.00	2.54E+10	313.4375	171072.	0.00

11.2000	-0.00782	-4315.	-6208.	2.02E-04	0.00	2.54E+10	289.1918	177408.	0.00
11.6000	-0.00686	-30781.	-4884.	1.98E-04	0.00	2.54E+10	262.5349	183744.	0.00
12.0000	-0.00592	-51198.	-3691.	1.91E-04	0.00	2.54E+10	234.4326	190080.	0.00
12.4000	-0.00503	-66214.	-2635.	1.80E-04	0.00	2.54E+10	205.7555	196416.	0.00
12.8000	-0.00420	-76490.	-1715.	1.66E-04	0.00	2.53E+10	177.2652	202752.	0.00
13.2000	-0.00343	-82681.	-930.7764	1.51E-04	0.00	2.53E+10	149.6087	209088.	0.00
13.6000	-0.00275	-85425.	-275.7594	1.35E-04	0.00	2.53E+10	123.3150	215424.	0.00
14.0000	-0.00214	-85328.	257.3112	1.19E-04	0.00	2.53E+10	98.7977	221760.	0.00
14.4000	-0.00161	-82955.	677.6905	1.03E-04	0.00	2.53E+10	76.3603	228096.	0.00
14.8000	-0.00115	-78822.	995.8453	8.76E-05	0.00	2.53E+10	56.2042	234432.	0.00
15.2000	-7.66E-04	-73395.	1223.	7.31E-05	0.00	2.53E+10	38.4390	240768.	0.00
15.6000	-4.49E-04	-67082.	1371.	5.98E-05	0.00	2.54E+10	23.0933	247104.	0.00
16.0000	-1.92E-04	-60236.	1450.	4.78E-05	0.00	2.54E+10	10.1270	253440.	0.00
16.4000	1.03E-05	-53158.	1473.	3.71E-05	0.00	2.54E+10	-0.5563	259776.	0.00
16.8000	1.64E-04	-46092.	1450.	2.77E-05	0.00	2.54E+10	-9.0970	266112.	0.00
17.2000	2.76E-04	-39236.	1391.	1.96E-05	0.00	2.54E+10	-15.6689	272448.	0.00
17.6000	3.52E-04	-32741.	1304.	1.28E-05	0.00	2.54E+10	-20.4687	278784.	0.00
18.0000	3.99E-04	-26717.	1198.	7.20E-06	0.00	2.54E+10	-23.7064	285120.	0.00
18.4000	4.22E-04	-21240.	1080.	2.67E-06	0.00	2.54E+10	-25.5963	291456.	0.00
18.8000	4.25E-04	-16352.	955.0096	-8.80E-07	0.00	2.54E+10	-26.3506	297792.	0.00
19.2000	4.13E-04	-12072.	828.9509	-3.56E-06	0.00	2.54E+10	-26.1738	304128.	0.00
19.6000	3.91E-04	-8394.	705.5138	-5.50E-06	0.00	2.54E+10	-25.2583	310464.	0.00
20.0000	3.60E-04	-5299.	587.8200	-6.79E-06	0.00	2.54E+10	-23.7808	316800.	0.00
20.4000	3.25E-04	-2751.	478.1860	-7.55E-06	0.00	2.54E+10	-21.9001	323136.	0.00
20.8000	2.88E-04	-708.3017	378.2121	-7.88E-06	0.00	2.54E+10	-19.7557	329472.	0.00
21.2000	2.50E-04	879.5307	288.8766	-7.86E-06	0.00	2.54E+10	-17.4674	335808.	0.00
21.6000	2.12E-04	2065.	210.6300	-7.58E-06	0.00	2.54E+10	-15.1353	342144.	0.00
22.0000	1.77E-04	2902.	143.4880	-7.12E-06	0.00	2.54E+10	-12.8405	348480.	0.00
22.4000	1.44E-04	3442.	87.1188	-6.52E-06	0.00	2.54E+10	-10.6466	354816.	0.00
22.8000	1.14E-04	3738.	40.9248	-5.84E-06	0.00	2.54E+10	-8.6009	361152.	0.00
23.2000	8.80E-05	3835.	4.1158	-5.12E-06	0.00	2.54E+10	-6.7362	367488.	0.00
23.6000	6.51E-05	3777.	-24.2258	-4.40E-06	0.00	2.54E+10	-5.0728	373824.	0.00
24.0000	4.57E-05	3603.	-45.0895	-3.71E-06	0.00	2.54E+10	-3.6204	380160.	0.00
24.4000	2.96E-05	3345.	-59.4900	-3.05E-06	0.00	2.54E+10	-2.3798	386496.	0.00
24.8000	1.64E-05	3032.	-68.4287	-2.45E-06	0.00	2.54E+10	-1.3447	392832.	0.00
25.2000	6.06E-06	2688.	-72.8645	-1.91E-06	0.00	2.54E+10	-0.5036	399168.	0.00
25.6000	-1.88E-06	2332.	-73.6912	-1.43E-06	0.00	2.54E+10	0.1591	405504.	0.00
26.0000	-7.71E-06	1980.	-71.7225	-1.03E-06	0.00	2.54E+10	0.6612	411840.	0.00
26.4000	-1.17E-05	1644.	-67.6819	-6.84E-07	0.00	2.54E+10	1.0223	418176.	0.00
26.8000	-1.43E-05	1330.	-62.1989	-4.03E-07	0.00	2.54E+10	1.2623	424512.	0.00
27.2000	-1.56E-05	1046.	-55.8081	-1.78E-07	0.00	2.54E+10	1.4006	430848.	0.00
27.6000	-1.60E-05	794.7158	-48.9523	-4.59E-09	0.00	2.54E+10	1.4560	437184.	0.00
28.0000	-1.56E-05	576.5177	-41.9879	1.25E-07	0.00	2.54E+10	1.4458	443520.	0.00
28.4000	-1.48E-05	391.6319	-35.1919	2.16E-07	0.00	2.54E+10	1.3858	449856.	0.00
28.8000	-1.36E-05	238.6751	-28.7706	2.76E-07	0.00	2.54E+10	1.2897	456192.	0.00
29.2000	-1.21E-05	115.4339	-22.8682	3.09E-07	0.00	2.54E+10	1.1696	462528.	0.00
29.6000	-1.06E-05	19.1404	-17.5760	3.22E-07	0.00	2.54E+10	1.0355	468864.	0.00
30.0000	-9.05E-06	-53.2959	-12.9416	3.19E-07	0.00	2.54E+10	0.8956	475200.	0.00

30.4000	-7.54E-06	-105.0987	-8.9769	3.04E-07	0.00	2.54E+10	0.7564	481536.	0.00
30.8000	-6.13E-06	-139.4745	-5.6666	2.81E-07	0.00	2.54E+10	0.6229	487872.	0.00
31.2000	-4.84E-06	-159.4982	-2.9746	2.53E-07	0.00	2.54E+10	0.4988	494208.	0.00
31.6000	-3.70E-06	-168.0307	-0.8505	2.22E-07	0.00	2.54E+10	0.3863	500544.	0.00
32.0000	-2.72E-06	-167.6632	0.7651	1.90E-07	0.00	2.54E+10	0.2869	506880.	0.00
32.4000	-1.88E-06	-160.6858	1.9364	1.59E-07	0.00	2.54E+10	0.2011	513216.	0.00
32.8000	-1.19E-06	-149.0742	2.7286	1.30E-07	0.00	2.54E+10	0.1290	519552.	0.00
33.2000	-6.37E-07	-134.4912	3.2056	1.03E-07	0.00	2.54E+10	0.06977	525888.	0.00
33.6000	-2.04E-07	-118.3008	3.4273	7.90E-08	0.00	2.54E+10	0.02264	532224.	0.00
34.0000	1.21E-07	-101.5889	3.4490	5.82E-08	0.00	2.54E+10	-0.01360	538560.	0.00
34.4000	3.55E-07	-85.1904	3.3198	4.06E-08	0.00	2.54E+10	-0.04024	544896.	0.00
34.8000	5.11E-07	-69.7190	3.0825	2.59E-08	0.00	2.54E+10	-0.05863	551232.	0.00
35.2000	6.03E-07	-55.5986	2.7736	1.41E-08	0.00	2.54E+10	-0.07008	557568.	0.00
35.6000	6.46E-07	-43.0929	2.4233	4.76E-09	0.00	2.54E+10	-0.07586	563904.	0.00
36.0000	6.49E-07	-32.3350	2.0562	-2.36E-09	0.00	2.54E+10	-0.07711	570240.	0.00
36.4000	6.23E-07	-23.3537	1.6915	-7.62E-09	0.00	2.54E+10	-0.07484	576576.	0.00
36.8000	5.76E-07	-16.0967	1.3440	-1.13E-08	0.00	2.54E+10	-0.06993	582912.	0.00
37.2000	5.14E-07	-10.4510	1.0247	-1.39E-08	0.00	2.54E+10	-0.06311	589248.	0.00
37.6000	4.43E-07	-6.2594	0.7414	-1.54E-08	0.00	2.54E+10	-0.05495	595584.	0.00
38.0000	3.66E-07	-3.3337	0.4994	-1.63E-08	0.00	2.54E+10	-0.04589	601920.	0.00
38.4000	2.86E-07	-1.4653	0.3023	-1.68E-08	0.00	2.54E+10	-0.03624	608256.	0.00
38.8000	2.05E-07	-0.4317	0.1524	-1.70E-08	0.00	2.54E+10	-0.02621	614592.	0.00
39.2000	1.23E-07	-0.00190	0.05135	-1.70E-08	0.00	2.54E+10	-0.01591	620928.	0.00
39.6000	4.13E-08	0.06127	1.98E-04	-1.70E-08	0.00	2.54E+10	-0.00540	627264.	0.00
40.0000	-4.03E-08	0.00	0.00	-1.70E-08	0.00	2.54E+10	0.00532	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 5:

```
Pile-head deflection             =     1.25000000 inches
Computed slope at pile head      =    -0.02179787 radians
Maximum bending moment           =       1003177. inch-lbs
Maximum shear force              =         24602. lbs
Depth of maximum bending moment  =     4.80000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             51
Number of zero deflection points =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 6

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.500000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	0.00	25144.	-0.02574	0.00	2.54E+10	0.00	0.00	0.00
0.4000	1.3765	120692.	25023.	-0.02573	0.00	2.54E+10	-50.3786	175.6809	0.00
0.8000	1.2530	240223.	24642.	-0.02569	0.00	2.51E+10	-108.6114	416.0620	0.00
1.2000	1.1298	357252.	23972.	-0.02544	0.00	3.81E+09	-170.5434	724.5551	0.00
1.6000	1.0088	470351.	23003.	-0.02492	0.00	3.79E+09	-233.0321	1109.	0.00
2.0000	0.8906	578081.	21739.	-0.02426	0.00	3.77E+09	-293.6386	1583.	0.00
2.4000	0.7759	679046.	20191.	-0.02345	0.00	3.75E+09	-351.2184	2173.	0.00
2.8000	0.6654	771919.	18367.	-0.02252	0.00	3.73E+09	-409.1001	2951.	0.00
3.2000	0.5597	855366.	16193.	-0.02141	0.00	3.32E+09	-496.6040	4259.	0.00
3.6000	0.4599	927372.	13532.	-0.02001	0.00	2.85E+09	-611.9830	6388.	0.00
4.0000	0.3676	985277.	10231.	-0.01831	0.00	2.58E+09	-763.5991	9971.	0.00
4.4000	0.2841	1025589.	6198.	-0.01629	0.00	2.22E+09	-916.9391	15492.	0.00
4.8000	0.2112	1044775.	1713.	-0.01372	0.00	1.72E+09	-951.8662	21629.	0.00
5.2000	0.1524	1042029.	-2884.	-0.01087	0.00	1.78E+09	-963.5116	30355.	0.00
5.6000	0.1069	1017085.	-7476.	-0.00845	0.00	2.41E+09	-949.8178	42633.	0.00
6.0000	0.07126	970256.	-11921.	-0.00655	0.00	2.64E+09	-902.1973	60772.	0.00
6.4000	0.04404	902641.	-16116.	-0.00495	0.00	2.99E+09	-845.6517	92170.	0.00
6.8000	0.02378	815542.	-19426.	-0.00369	0.00	3.65E+09	-533.5410	107712.	0.00
7.2000	0.00866	716151.	-21200.	-0.00269	0.00	3.74E+09	-205.7126	114048.	0.00
7.6000	-0.00205	612019.	-21570.	-0.00184	0.00	3.76E+09	51.4891	120384.	0.00
8.0000	-0.00902	509075.	-20875.	-0.00113	0.00	3.78E+09	238.0852	126720.	0.00
8.4000	-0.01288	411615.	-19447.	-5.46E-04	0.00	3.80E+09	357.1633	133056.	0.00
8.8000	-0.01426	322385.	-17596.	-8.33E-05	0.00	3.82E+09	414.0246	139392.	0.00
9.2000	-0.01368	242693.	-15605.	1.43E-04	0.00	2.51E+10	415.4529	145728.	0.00
9.6000	-0.01289	172574.	-13628.	1.82E-04	0.00	2.52E+10	408.3147	152064.	0.00
10.0000	-0.01194	111862.	-11703.	2.09E-04	0.00	2.53E+10	393.8716	158400.	0.00
10.4000	-0.01088	60226.	-9861.	2.26E-04	0.00	2.54E+10	373.4150	164736.	0.00
10.8000	-0.00977	17192.	-8130.	2.33E-04	0.00	2.54E+10	348.2235	171072.	0.00
11.2000	-0.00865	-17818.	-6527.	2.33E-04	0.00	2.54E+10	319.5258	177408.	0.00
11.6000	-0.00754	-45467.	-5068.	2.27E-04	0.00	2.54E+10	288.4756	183744.	0.00
12.0000	-0.00647	-66469.	-3761.	2.16E-04	0.00	2.54E+10	256.1313	190080.	0.00
12.4000	-0.00546	-81569.	-2610.	2.02E-04	0.00	2.53E+10	223.4387	196416.	0.00
12.8000	-0.00453	-91522.	-1615.	1.86E-04	0.00	2.53E+10	191.2195	202752.	0.00
13.2000	-0.00368	-97069.	-771.2314	1.68E-04	0.00	2.53E+10	160.1632	209088.	0.00
13.6000	-0.00292	-98926.	-72.8545	1.49E-04	0.00	2.53E+10	130.8272	215424.	0.00

14.0000	-0.00224	-97768.	489.8664	1.31E-04	0.00	2.53E+10	103.6399	221760.	0.00
14.4000	-0.00166	-94223.	927.9800	1.12E-04	0.00	2.53E+10	78.9075	228096.	0.00
14.8000	-0.00116	-88860.	1254.	9.51E-05	0.00	2.53E+10	56.8237	234432.	0.00
15.2000	-7.47E-04	-82187.	1480.	7.89E-05	0.00	2.53E+10	37.4825	240768.	0.00
15.6000	-4.06E-04	-74651.	1620.	6.41E-05	0.00	2.53E+10	20.8904	247104.	0.00
16.0000	-1.32E-04	-66634.	1687.	5.07E-05	0.00	2.54E+10	6.9799	253440.	0.00
16.4000	8.09E-05	-58455.	1693.	3.89E-05	0.00	2.54E+10	-4.3764	259776.	0.00
16.8000	2.41E-04	-50378.	1651.	2.86E-05	0.00	2.54E+10	-13.3518	266112.	0.00
17.2000	3.55E-04	-42608.	1570.	1.98E-05	0.00	2.54E+10	-20.1534	272448.	0.00
17.6000	4.31E-04	-35303.	1462.	1.24E-05	0.00	2.54E+10	-25.0106	278784.	0.00
18.0000	4.74E-04	-28574.	1334.	6.37E-06	0.00	2.54E+10	-28.1651	285120.	0.00
18.4000	4.92E-04	-22493.	1195.	1.55E-06	0.00	2.54E+10	-29.8613	291456.	0.00
18.8000	4.89E-04	-17101.	1051.	-2.19E-06	0.00	2.54E+10	-30.3386	297792.	0.00
19.2000	4.71E-04	-12408.	906.1877	-4.98E-06	0.00	2.54E+10	-29.8262	304128.	0.00
19.6000	4.41E-04	-8402.	766.1143	-6.94E-06	0.00	2.54E+10	-28.5378	310464.	0.00
20.0000	4.04E-04	-5053.	633.6191	-8.22E-06	0.00	2.54E+10	-26.6686	316800.	0.00
20.4000	3.62E-04	-2319.	511.0716	-8.91E-06	0.00	2.54E+10	-24.3929	323136.	0.00
20.8000	3.19E-04	-146.6228	400.0581	-9.14E-06	0.00	2.54E+10	-21.8627	329472.	0.00
21.2000	2.75E-04	1522.	301.4894	-9.02E-06	0.00	2.54E+10	-19.2076	335808.	0.00
21.6000	2.32E-04	2748.	215.7081	-8.61E-06	0.00	2.54E+10	-16.5347	342144.	0.00
22.0000	1.92E-04	3593.	142.5922	-8.01E-06	0.00	2.54E+10	-13.9303	348480.	0.00
22.4000	1.55E-04	4117.	81.6536	-7.28E-06	0.00	2.54E+10	-11.4608	354816.	0.00
22.8000	1.22E-04	4376.	32.1277	-6.48E-06	0.00	2.54E+10	-9.1750	361152.	0.00
23.2000	9.28E-05	4425.	-6.9457	-5.65E-06	0.00	2.54E+10	-7.1056	367488.	0.00
23.6000	6.77E-05	4310.	-36.6515	-4.83E-06	0.00	2.54E+10	-5.2718	373824.	0.00
24.0000	4.65E-05	4073.	-58.1386	-4.03E-06	0.00	2.54E+10	-3.6812	380160.	0.00
24.4000	2.90E-05	3752.	-72.5702	-3.30E-06	0.00	2.54E+10	-2.3320	386496.	0.00
24.8000	1.48E-05	3376.	-81.0827	-2.62E-06	0.00	2.54E+10	-1.2149	392832.	0.00
25.2000	3.79E-06	2973.	-84.7550	-2.02E-06	0.00	2.54E+10	-0.3152	399168.	0.00
25.6000	-4.57E-06	2563.	-84.5852	-1.50E-06	0.00	2.54E+10	0.3859	405504.	0.00
26.0000	-1.06E-05	2161.	-81.4757	-1.05E-06	0.00	2.54E+10	0.9097	411840.	0.00
26.4000	-1.47E-05	1781.	-76.2233	-6.81E-07	0.00	2.54E+10	1.2787	418176.	0.00
26.8000	-1.71E-05	1430.	-69.5167	-3.78E-07	0.00	2.54E+10	1.5157	424512.	0.00
27.2000	-1.83E-05	1113.	-61.9363	-1.37E-07	0.00	2.54E+10	1.6428	430848.	0.00
27.6000	-1.85E-05	834.9154	-53.9590	4.67E-08	0.00	2.54E+10	1.6810	437184.	0.00
28.0000	-1.79E-05	595.2778	-45.9651	1.82E-07	0.00	2.54E+10	1.6497	443520.	0.00
28.4000	-1.67E-05	393.6501	-38.2468	2.75E-07	0.00	2.54E+10	1.5662	449856.	0.00
28.8000	-1.52E-05	228.1087	-31.0178	3.34E-07	0.00	2.54E+10	1.4458	456192.	0.00
29.2000	-1.35E-05	95.8790	-24.4243	3.64E-07	0.00	2.54E+10	1.3015	462528.	0.00
29.6000	-1.17E-05	-6.3643	-18.5546	3.73E-07	0.00	2.54E+10	1.1442	468864.	0.00
30.0000	-9.93E-06	-82.2455	-13.4501	3.65E-07	0.00	2.54E+10	0.9827	475200.	0.00
30.4000	-8.21E-06	-135.4851	-9.1140	3.44E-07	0.00	2.54E+10	0.8240	481536.	0.00
30.8000	-6.62E-06	-169.7399	-5.5206	3.15E-07	0.00	2.54E+10	0.6732	487872.	0.00
31.2000	-5.19E-06	-188.4832	-2.6229	2.81E-07	0.00	2.54E+10	0.5341	494208.	0.00
31.6000	-3.92E-06	-194.9198	-0.3592	2.45E-07	0.00	2.54E+10	0.4091	500544.	0.00
32.0000	-2.83E-06	-191.9311	1.3411	2.09E-07	0.00	2.54E+10	0.2993	506880.	0.00
32.4000	-1.92E-06	-182.0456	2.5523	1.73E-07	0.00	2.54E+10	0.2053	513216.	0.00
32.8000	-1.17E-06	-167.4294	3.3493	1.40E-07	0.00	2.54E+10	0.1268	519552.	0.00

33.2000	-5.74E-07	-149.8921	3.8045	1.10E-07	0.00	2.54E+10	0.06288	525888.	0.00
33.6000	-1.13E-07	-130.9060	3.9854	8.38E-08	0.00	2.54E+10	0.01248	532224.	0.00
34.0000	2.30E-07	-111.6323	3.9534	6.09E-08	0.00	2.54E+10	-0.02582	538560.	0.00
34.4000	4.72E-07	-92.9536	3.7629	4.15E-08	0.00	2.54E+10	-0.05354	544896.	0.00
34.8000	6.29E-07	-75.5084	3.4611	2.56E-08	0.00	2.54E+10	-0.07221	551232.	0.00
35.2000	7.18E-07	-59.7271	3.0877	1.28E-08	0.00	2.54E+10	-0.08335	557568.	0.00
35.6000	7.52E-07	-45.8661	2.6757	2.87E-09	0.00	2.54E+10	-0.08836	563904.	0.00
36.0000	7.45E-07	-34.0408	2.2512	-4.68E-09	0.00	2.54E+10	-0.08851	570240.	0.00
36.4000	7.07E-07	-24.2549	1.8349	-1.02E-08	0.00	2.54E+10	-0.08495	576576.	0.00
36.8000	6.47E-07	-16.4262	1.4423	-1.40E-08	0.00	2.54E+10	-0.07861	582912.	0.00
37.2000	5.73E-07	-10.4085	1.0850	-1.66E-08	0.00	2.54E+10	-0.07028	589248.	0.00
37.6000	4.88E-07	-6.0101	0.7709	-1.81E-08	0.00	2.54E+10	-0.06059	595584.	0.00
38.0000	3.99E-07	-3.0077	0.5056	-1.90E-08	0.00	2.54E+10	-0.04999	601920.	0.00
38.4000	3.06E-07	-1.1569	0.2925	-1.94E-08	0.00	2.54E+10	-0.03880	608256.	0.00
38.8000	2.13E-07	-0.2001	0.1339	-1.95E-08	0.00	2.54E+10	-0.02724	614592.	0.00
39.2000	1.19E-07	0.1290	0.03158	-1.95E-08	0.00	2.54E+10	-0.01541	620928.	0.00
39.6000	2.56E-08	0.1031	-0.01344	-1.95E-08	0.00	2.54E+10	-0.00335	627264.	0.00
40.0000	-6.78E-08	0.00	0.00	-1.95E-08	0.00	2.54E+10	0.00895	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 6:

```
Pile-head deflection            =     1.50000000 inches
Computed slope at pile head     =    -0.02573825 radians
Maximum bending moment          =       1044775. inch-lbs
Maximum shear force             =         25144. lbs
Depth of maximum bending moment =     4.80000000 feet below pile head
Depth of maximum shear force    =       0.000000 feet below pile head
Number of iterations            =             43
Number of zero deflection points =             5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 7

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                              =     1.750000 inches
Moment at pile head                                    =          0.0 in-lbs
```

Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	0.00	25283.	-0.02974	0.00	2.54E+10	0.00	0.00	0.00
0.4000	1.6073	121359.	25162.	-0.02973	0.00	2.54E+10	-50.3786	150.4535	0.00
0.8000	1.4646	241558.	24781.	-0.02969	0.00	2.51E+10	-108.6114	355.9523	0.00
1.2000	1.3222	359254.	24111.	-0.02944	0.00	3.81E+09	-170.5433	619.1229	0.00
1.6000	1.1820	473020.	23142.	-0.02892	0.00	3.79E+09	-233.0317	946.3513	0.00
2.0000	1.0446	581418.	21878.	-0.02825	0.00	3.77E+09	-293.6379	1349.	0.00
2.4000	0.9108	683050.	20330.	-0.02744	0.00	3.75E+09	-351.2174	1851.	0.00
2.8000	0.7812	776590.	18510.	-0.02650	0.00	3.73E+09	-407.1307	2502.	0.00
3.2000	0.6563	860750.	16420.	-0.02537	0.00	3.28E+09	-463.8897	3393.	0.00
3.6000	0.5376	934222.	13934.	-0.02395	0.00	2.81E+09	-572.0590	5108.	0.00
4.0000	0.4264	994514.	10828.	-0.02221	0.00	2.54E+09	-722.0471	8127.	0.00
4.4000	0.3243	1038169.	6912.	-0.01994	0.00	1.87E+09	-909.5387	13460.	0.00
4.8000	0.2350	1060869.	2368.	-0.01660	0.00	1.27E+09	-983.8490	20094.	0.00
5.2000	0.1650	1060901.	-2366.	-0.01258	0.00	1.26E+09	-988.6120	28768.	0.00
5.6000	0.1142	1038156.	-7070.	-0.00923	0.00	1.87E+09	-971.2971	40819.	0.00
6.0000	0.07630	993031.	-11620.	-0.00696	0.00	2.55E+09	-924.4322	58155.	0.00
6.4000	0.04736	926608.	-15921.	-0.00525	0.00	2.85E+09	-867.7981	87945.	0.00
6.8000	0.02591	840191.	-19399.	-0.00388	0.00	3.45E+09	-581.3963	107712.	0.00
7.2000	0.01007	740378.	-21369.	-0.00282	0.00	3.74E+09	-239.3356	114048.	0.00
7.6000	-0.00120	635051.	-21871.	-0.00194	0.00	3.76E+09	30.1000	120384.	0.00
8.0000	-0.00858	530418.	-21255.	-0.00120	0.00	3.78E+09	226.5717	126720.	0.00
8.4000	-0.01273	431004.	-19864.	-5.92E-04	0.00	3.80E+09	352.9281	133056.	0.00
8.8000	-0.01427	339723.	-18023.	-1.06E-04	0.00	3.82E+09	414.3341	139392.	0.00
9.2000	-0.01375	257987.	-16026.	1.32E-04	0.00	2.51E+10	417.5131	145728.	0.00
9.6000	-0.01300	185871.	-14036.	1.74E-04	0.00	2.52E+10	411.8256	152064.	0.00
10.0000	-0.01208	123244.	-12091.	2.04E-04	0.00	2.53E+10	398.5418	158400.	0.00
10.4000	-0.01104	69798.	-10225.	2.22E-04	0.00	2.54E+10	378.9676	164736.	0.00
10.8000	-0.00994	25085.	-8465.	2.31E-04	0.00	2.54E+10	354.4007	171072.	0.00
11.2000	-0.00882	-11464.	-6832.	2.32E-04	0.00	2.54E+10	326.0937	177408.	0.00
11.6000	-0.00771	-40499.	-5340.	2.28E-04	0.00	2.54E+10	295.2251	183744.	0.00
12.0000	-0.00664	-62732.	-4001.	2.18E-04	0.00	2.54E+10	262.8798	190080.	0.00
12.4000	-0.00562	-78908.	-2818.	2.04E-04	0.00	2.53E+10	230.0311	196416.	0.00
12.8000	-0.00468	-89785.	-1792.	1.88E-04	0.00	2.53E+10	197.5285	202752.	0.00
13.2000	-0.00381	-96110.	-919.1843	1.71E-04	0.00	2.53E+10	166.0887	209088.	0.00
13.6000	-0.00304	-98609.	-193.4642	1.52E-04	0.00	2.53E+10	136.2946	215424.	0.00
14.0000	-0.00235	-97967.	394.2790	1.34E-04	0.00	2.53E+10	108.5983	221760.	0.00
14.4000	-0.00175	-94824.	854.9004	1.15E-04	0.00	2.53E+10	83.3273	228096.	0.00
14.8000	-0.00124	-89760.	1201.	9.79E-05	0.00	2.53E+10	60.6939	234432.	0.00
15.2000	-8.14E-04	-83299.	1444.	8.15E-05	0.00	2.53E+10	40.8080	240768.	0.00
15.6000	-4.60E-04	-75896.	1599.	6.64E-05	0.00	2.53E+10	23.6892	247104.	0.00
16.0000	-1.76E-04	-67949.	1678.	5.28E-05	0.00	2.54E+10	9.2806	253440.	0.00
16.4000	4.69E-05	-59787.	1694.	4.07E-05	0.00	2.54E+10	-2.5374	259776.	0.00

16.8000	2.15E-04	-51684.	1660.	3.02E-05	0.00	2.54E+10	-11.9326	266112.	0.00
17.2000	3.37E-04	-43855.	1585.	2.12E-05	0.00	2.54E+10	-19.1087	272448.	0.00
17.6000	4.18E-04	-36467.	1481.	1.36E-05	0.00	2.54E+10	-24.2934	278784.	0.00
18.0000	4.67E-04	-29639.	1356.	7.31E-06	0.00	2.54E+10	-27.7285	285120.	0.00
18.4000	4.88E-04	-23450.	1218.	2.30E-06	0.00	2.54E+10	-29.6599	291456.	0.00
18.8000	4.89E-04	-17944.	1074.	-1.61E-06	0.00	2.54E+10	-30.3292	297792.	0.00
19.2000	4.73E-04	-13136.	929.5942	-4.55E-06	0.00	2.54E+10	-29.9687	304128.	0.00
19.6000	4.45E-04	-9019.	788.5596	-6.64E-06	0.00	2.54E+10	-28.7958	310464.	0.00
20.0000	4.09E-04	-5566.	654.6264	-8.02E-06	0.00	2.54E+10	-27.0097	316800.	0.00
20.4000	3.68E-04	-2735.	530.3097	-8.80E-06	0.00	2.54E+10	-24.7889	323136.	0.00
20.8000	3.25E-04	-475.1583	417.3211	-9.11E-06	0.00	2.54E+10	-22.2897	329472.	0.00
21.2000	2.81E-04	1271.	316.6769	-9.03E-06	0.00	2.54E+10	-19.6454	335808.	0.00
21.6000	2.38E-04	2565.	228.8062	-8.67E-06	0.00	2.54E+10	-16.9674	342144.	0.00
22.0000	1.98E-04	3468.	153.6559	-8.10E-06	0.00	2.54E+10	-14.3453	348480.	0.00
22.4000	1.60E-04	4040.	90.7900	-7.39E-06	0.00	2.54E+10	-11.8488	354816.	0.00
22.8000	1.27E-04	4339.	39.4818	-6.60E-06	0.00	2.54E+10	-9.5296	361152.	0.00
23.2000	9.70E-05	4419.	-1.2037	-5.77E-06	0.00	2.54E+10	-7.4227	367488.	0.00
23.6000	7.13E-05	4328.	-32.3372	-4.94E-06	0.00	2.54E+10	-5.5496	373824.	0.00
24.0000	4.95E-05	4109.	-55.0625	-4.15E-06	0.00	2.54E+10	-3.9194	380160.	0.00
24.4000	3.14E-05	3799.	-70.5450	-3.40E-06	0.00	2.54E+10	-2.5317	386496.	0.00
24.8000	1.68E-05	3431.	-79.9288	-2.72E-06	0.00	2.54E+10	-1.3783	392832.	0.00
25.2000	5.35E-06	3032.	-84.3048	-2.11E-06	0.00	2.54E+10	-0.4451	399168.	0.00
25.6000	-3.39E-06	2622.	-84.6861	-1.57E-06	0.00	2.54E+10	0.2862	405504.	0.00
26.0000	-9.75E-06	2219.	-81.9915	-1.12E-06	0.00	2.54E+10	0.8365	411840.	0.00
26.4000	-1.41E-05	1835.	-77.0357	-7.33E-07	0.00	2.54E+10	1.2284	418176.	0.00
26.8000	-1.68E-05	1479.	-70.5246	-4.20E-07	0.00	2.54E+10	1.4846	424512.	0.00
27.2000	-1.81E-05	1158.	-63.0558	-1.71E-07	0.00	2.54E+10	1.6274	430848.	0.00
27.6000	-1.84E-05	873.9930	-55.1222	2.11E-08	0.00	2.54E+10	1.6782	437184.	0.00
28.0000	-1.79E-05	628.7395	-47.1187	1.63E-07	0.00	2.54E+10	1.6566	443520.	0.00
28.4000	-1.69E-05	421.6531	-39.3506	2.62E-07	0.00	2.54E+10	1.5801	449856.	0.00
28.8000	-1.54E-05	250.9733	-32.0433	3.26E-07	0.00	2.54E+10	1.4646	456192.	0.00
29.2000	-1.37E-05	114.0376	-25.3525	3.60E-07	0.00	2.54E+10	1.3233	462528.	0.00
29.6000	-1.20E-05	7.5897	-19.3749	3.72E-07	0.00	2.54E+10	1.1674	468864.	0.00
30.0000	-1.02E-05	-71.9610	-14.1583	3.66E-07	0.00	2.54E+10	1.0062	475200.	0.00
30.4000	-8.44E-06	-128.3297	-9.7112	3.47E-07	0.00	2.54E+10	0.8468	481536.	0.00
30.8000	-6.83E-06	-165.1890	-6.0119	3.19E-07	0.00	2.54E+10	0.6946	487872.	0.00
31.2000	-5.38E-06	-186.0442	-3.0160	2.86E-07	0.00	2.54E+10	0.5537	494208.	0.00
31.6000	-4.09E-06	-194.1427	-0.6637	2.50E-07	0.00	2.54E+10	0.4265	500544.	0.00
32.0000	-2.98E-06	-192.4153	1.1146	2.13E-07	0.00	2.54E+10	0.3145	506880.	0.00
32.4000	-2.04E-06	-183.4427	2.3929	1.78E-07	0.00	2.54E+10	0.2182	513216.	0.00
32.8000	-1.27E-06	-169.4437	3.2462	1.45E-07	0.00	2.54E+10	0.1374	519552.	0.00
33.2000	-6.52E-07	-152.2790	3.7474	1.14E-07	0.00	2.54E+10	0.07143	525888.	0.00
33.6000	-1.73E-07	-133.4684	3.9648	8.72E-08	0.00	2.54E+10	0.01915	532224.	0.00
34.0000	1.86E-07	-114.2167	3.9608	6.39E-08	0.00	2.54E+10	-0.02082	538560.	0.00
34.4000	4.40E-07	-95.4447	3.7909	4.41E-08	0.00	2.54E+10	-0.04998	544896.	0.00
34.8000	6.08E-07	-77.8244	3.5032	2.77E-08	0.00	2.54E+10	-0.06988	551232.	0.00
35.2000	7.06E-07	-61.8140	3.1387	1.45E-08	0.00	2.54E+10	-0.08202	557568.	0.00
35.6000	7.48E-07	-47.6933	2.7310	4.15E-09	0.00	2.54E+10	-0.08783	563904.	0.00

36.0000	7.46E-07	-35.5963	2.3075	-3.72E-09	0.00	2.54E+10	-0.08862	570240.	0.00
36.4000	7.12E-07	-25.5409	1.8896	-9.49E-09	0.00	2.54E+10	-0.08552	576576.	0.00
36.8000	6.55E-07	-17.4560	1.4935	-1.36E-08	0.00	2.54E+10	-0.07952	582912.	0.00
37.2000	5.82E-07	-11.2032	1.1312	-1.63E-08	0.00	2.54E+10	-0.07143	589248.	0.00
37.6000	4.99E-07	-6.5961	0.8113	-1.79E-08	0.00	2.54E+10	-0.06188	595584.	0.00
38.0000	4.10E-07	-3.4148	0.5395	-1.89E-08	0.00	2.54E+10	-0.05137	601920.	0.00
38.4000	3.17E-07	-1.4169	0.3197	-1.93E-08	0.00	2.54E+10	-0.04022	608256.	0.00
38.8000	2.24E-07	-0.3459	0.1543	-1.95E-08	0.00	2.54E+10	-0.02867	614592.	0.00
39.2000	1.30E-07	0.06454	0.04510	-1.95E-08	0.00	2.54E+10	-0.01684	620928.	0.00
39.6000	3.64E-08	0.08707	-0.00672	-1.95E-08	0.00	2.54E+10	-0.00476	627264.	0.00
40.0000	-5.73E-08	0.00	0.00	-1.95E-08	0.00	2.54E+10	0.00756	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 7:

```
Pile-head deflection              =     1.75000000 inches
Computed slope at pile head       =    -0.02973862 radians
Maximum bending moment            =       1060901. inch-lbs
Maximum shear force               =         25283. lbs
Depth of maximum bending moment   =     5.20000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             69
Number of zero deflection points  =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 8

Pile-head conditions are Displacement and Moment (Loading Type 4)

```
Displacement of pile head                         =     2.000000 inches
Moment at pile head                               =          0.0 in-lbs
Axial load at pile head                           =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	0.00	25279.	-0.03371	0.00	2.54E+10	0.00	0.00	0.00

0.4000	1.8382	121338.	25158.	-0.03370	0.00	2.54E+10	-50.3786	131.5525	0.00
0.8000	1.6765	241516.	24776.	-0.03367	0.00	2.51E+10	-108.6116	310.9719	0.00
1.2000	1.5150	359191.	24106.	-0.03342	0.00	3.81E+09	-170.5438	540.3424	0.00
1.6000	1.3557	472937.	23138.	-0.03289	0.00	3.79E+09	-233.0328	825.0970	0.00
2.0000	1.1992	581314.	21874.	-0.03222	0.00	3.77E+09	-293.6398	1175.	0.00
2.4000	1.0463	682926.	20326.	-0.03142	0.00	3.75E+09	-351.2204	1611.	0.00
2.8000	0.8976	776445.	18506.	-0.03048	0.00	3.73E+09	-407.1353	2177.	0.00
3.2000	0.7537	860584.	16431.	-0.02935	0.00	3.28E+09	-457.5831	2914.	0.00
3.6000	0.6159	934180.	14056.	-0.02792	0.00	2.81E+09	-531.8333	4145.	0.00
4.0000	0.4857	995523.	11147.	-0.02618	0.00	2.54E+09	-680.2639	6723.	0.00
4.4000	0.3645	1041192.	7419.	-0.02385	0.00	1.79E+09	-873.1116	11497.	0.00
4.8000	0.2568	1066745.	2897.	-0.01995	0.00	1.02E+09	-1011.	18904.	0.00
5.2000	0.1730	1068999.	-1940.	-0.01438	0.00	8.35E+08	-1004.	27857.	0.00
5.6000	0.1187	1048122.	-6711.	-0.00974	0.00	1.60E+09	-984.0715	39791.	0.00
6.0000	0.07948	1004572.	-11324.	-0.00721	0.00	2.50E+09	-937.9523	56645.	0.00
6.4000	0.04953	939412.	-15691.	-0.00543	0.00	2.79E+09	-881.6472	85449.	0.00
6.8000	0.02734	853939.	-19279.	-0.00401	0.00	3.33E+09	-613.4491	107712.	0.00
7.2000	0.01106	754331.	-21382.	-0.00291	0.00	3.74E+09	-262.7387	114048.	0.00
7.6000	-5.69E-04	648671.	-21978.	-0.00201	0.00	3.76E+09	14.2660	120384.	0.00
8.0000	-0.00822	543338.	-21423.	-0.00125	0.00	3.78E+09	216.9580	126720.	0.00
8.4000	-0.01255	443005.	-20068.	-6.23E-04	0.00	3.80E+09	347.9975	133056.	0.00
8.8000	-0.01420	350690.	-18243.	-1.23E-04	0.00	3.81E+09	412.4199	139392.	0.00
9.2000	-0.01373	267876.	-16252.	1.24E-04	0.00	2.51E+10	416.8677	145728.	0.00
9.6000	-0.01301	194667.	-14262.	1.68E-04	0.00	2.52E+10	412.2747	152064.	0.00
10.0000	-0.01212	130957.	-12313.	1.99E-04	0.00	2.53E+10	399.9105	158400.	0.00
10.4000	-0.01110	76461.	-10439.	2.19E-04	0.00	2.53E+10	381.0849	164736.	0.00
10.8000	-0.01002	30746.	-8667.	2.29E-04	0.00	2.54E+10	357.1032	171072.	0.00
11.2000	-0.00891	-6743.	-7020.	2.31E-04	0.00	2.54E+10	329.2289	177408.	0.00
11.6000	-0.00780	-36645.	-5513.	2.27E-04	0.00	2.54E+10	298.6529	183744.	0.00
12.0000	-0.00673	-59667.	-4157.	2.18E-04	0.00	2.54E+10	266.4738	190080.	0.00
12.4000	-0.00571	-76549.	-2956.	2.05E-04	0.00	2.53E+10	233.6805	196416.	0.00
12.8000	-0.00476	-88047.	-1913.	1.89E-04	0.00	2.53E+10	201.1380	202752.	0.00
13.2000	-0.00389	-94911.	-1023.	1.72E-04	0.00	2.53E+10	169.5795	209088.	0.00
13.6000	-0.00311	-97868.	-280.9680	1.54E-04	0.00	2.53E+10	139.6033	215424.	0.00
14.0000	-0.00242	-97609.	322.1037	1.35E-04	0.00	2.53E+10	111.6766	221760.	0.00
14.4000	-0.00181	-94776.	796.8656	1.17E-04	0.00	2.53E+10	86.1408	228096.	0.00
14.8000	-0.00129	-89959.	1155.	9.94E-05	0.00	2.53E+10	63.2210	234432.	0.00
15.2000	-8.58E-04	-83685.	1410.	8.30E-05	0.00	2.53E+10	43.0381	240768.	0.00
15.6000	-4.98E-04	-76419.	1575.	6.78E-05	0.00	2.53E+10	25.6211	247104.	0.00
16.0000	-2.07E-04	-68564.	1663.	5.41E-05	0.00	2.54E+10	10.9213	253440.	0.00
16.4000	2.17E-05	-60456.	1686.	4.19E-05	0.00	2.54E+10	-1.1745	259776.	0.00
16.8000	1.95E-04	-52376.	1657.	3.12E-05	0.00	2.54E+10	-10.8294	266112.	0.00
17.2000	3.21E-04	-44545.	1588.	2.21E-05	0.00	2.54E+10	-18.2433	272448.	0.00
17.6000	4.07E-04	-37134.	1487.	1.43E-05	0.00	2.54E+10	-23.6418	278784.	0.00
18.0000	4.59E-04	-30269.	1365.	7.96E-06	0.00	2.54E+10	-27.2652	285120.	0.00
18.4000	4.84E-04	-24031.	1229.	2.84E-06	0.00	2.54E+10	-29.3592	291456.	0.00
18.8000	4.86E-04	-18470.	1086.	-1.18E-06	0.00	2.54E+10	-30.1660	297792.	0.00
19.2000	4.72E-04	-13603.	941.9844	-4.21E-06	0.00	2.54E+10	-29.9188	304128.	0.00

19.6000	4.46E-04	-9427.	800.9712	-6.38E-06	0.00	2.54E+10	-28.8367	310464.	0.00
20.0000	4.11E-04	-5914.	666.6728	-7.83E-06	0.00	2.54E+10	-27.1209	316800.	0.00
20.4000	3.71E-04	-3027.	541.6981	-8.68E-06	0.00	2.54E+10	-24.9519	323136.	0.00
20.8000	3.28E-04	-713.8730	427.8420	-9.03E-06	0.00	2.54E+10	-22.4882	329472.	0.00
21.2000	2.84E-04	1081.	326.1931	-9.00E-06	0.00	2.54E+10	-19.8656	335808.	0.00
21.6000	2.41E-04	2418.	237.2416	-8.67E-06	0.00	2.54E+10	-17.1975	342144.	0.00
22.0000	2.01E-04	3358.	160.9852	-8.12E-06	0.00	2.54E+10	-14.5760	348480.	0.00
22.4000	1.63E-04	3963.	97.0286	-7.43E-06	0.00	2.54E+10	-12.0726	354816.	0.00
22.8000	1.29E-04	4290.	44.6767	-6.65E-06	0.00	2.54E+10	-9.7407	361152.	0.00
23.2000	9.95E-05	4392.	3.0176	-5.83E-06	0.00	2.54E+10	-7.6173	367488.	0.00
23.6000	7.35E-05	4319.	-29.0035	-5.01E-06	0.00	2.54E+10	-5.7248	373824.	0.00
24.0000	5.14E-05	4114.	-52.5207	-4.21E-06	0.00	2.54E+10	-4.0740	380160.	0.00
24.4000	3.31E-05	3814.	-68.6947	-3.46E-06	0.00	2.54E+10	-2.6652	386496.	0.00
24.8000	1.82E-05	3454.	-78.6698	-2.77E-06	0.00	2.54E+10	-1.4911	392832.	0.00
25.2000	6.47E-06	3059.	-83.5398	-2.16E-06	0.00	2.54E+10	-0.5381	399168.	0.00
25.6000	-2.50E-06	2652.	-84.3236	-1.62E-06	0.00	2.54E+10	0.2115	405504.	0.00
26.0000	-9.07E-06	2250.	-81.9476	-1.16E-06	0.00	2.54E+10	0.7785	411840.	0.00
26.4000	-1.36E-05	1865.	-77.2350	-7.67E-07	0.00	2.54E+10	1.1851	418176.	0.00
26.8000	-1.64E-05	1508.	-70.9010	-4.49E-07	0.00	2.54E+10	1.4541	424512.	0.00
27.2000	-1.79E-05	1185.	-63.5526	-1.94E-07	0.00	2.54E+10	1.6078	430848.	0.00
27.6000	-1.83E-05	898.1733	-55.6920	2.28E-09	0.00	2.54E+10	1.6675	437184.	0.00
28.0000	-1.79E-05	650.0615	-47.7227	1.49E-07	0.00	2.54E+10	1.6530	443520.	0.00
28.4000	-1.69E-05	440.0355	-39.9581	2.51E-07	0.00	2.54E+10	1.5822	449856.	0.00
28.8000	-1.55E-05	266.4636	-32.6309	3.18E-07	0.00	2.54E+10	1.4708	456192.	0.00
29.2000	-1.38E-05	126.7793	-25.9031	3.55E-07	0.00	2.54E+10	1.3324	462528.	0.00
29.6000	-1.21E-05	17.7937	-19.8771	3.69E-07	0.00	2.54E+10	1.1784	468864.	0.00
30.0000	-1.03E-05	-64.0408	-14.6051	3.65E-07	0.00	2.54E+10	1.0182	475200.	0.00
30.4000	-8.56E-06	-122.4158	-10.0996	3.47E-07	0.00	2.54E+10	0.8591	481536.	0.00
30.8000	-6.95E-06	-160.9970	-6.3416	3.20E-07	0.00	2.54E+10	0.7067	487872.	0.00
31.2000	-5.49E-06	-183.2949	-3.2890	2.88E-07	0.00	2.54E+10	0.5652	494208.	0.00
31.6000	-4.19E-06	-192.5716	-0.8838	2.52E-07	0.00	2.54E+10	0.4370	500544.	0.00
32.0000	-3.07E-06	-191.7789	0.9426	2.16E-07	0.00	2.54E+10	0.3239	506880.	0.00
32.4000	-2.12E-06	-183.5227	2.2635	1.80E-07	0.00	2.54E+10	0.2265	513216.	0.00
32.8000	-1.33E-06	-170.0490	3.1538	1.47E-07	0.00	2.54E+10	0.1445	519552.	0.00
33.2000	-7.06E-07	-153.2462	3.6862	1.17E-07	0.00	2.54E+10	0.07734	525888.	0.00
33.6000	-2.16E-07	-134.6615	3.9293	8.94E-08	0.00	2.54E+10	0.02394	532224.	0.00
34.0000	1.52E-07	-115.5251	3.9458	6.57E-08	0.00	2.54E+10	-0.01705	538560.	0.00
34.4000	4.15E-07	-96.7814	3.7919	4.57E-08	0.00	2.54E+10	-0.04712	544896.	0.00
34.8000	5.90E-07	-79.1233	3.5160	2.91E-08	0.00	2.54E+10	-0.06780	551232.	0.00
35.2000	6.94E-07	-63.0273	3.1598	1.56E-08	0.00	2.54E+10	-0.08062	557568.	0.00
35.6000	7.40E-07	-48.7888	2.7576	5.07E-09	0.00	2.54E+10	-0.08699	563904.	0.00
36.0000	7.43E-07	-36.5546	2.3370	-2.99E-09	0.00	2.54E+10	-0.08823	570240.	0.00
36.4000	7.12E-07	-26.3533	1.9201	-8.93E-09	0.00	2.54E+10	-0.08550	576576.	0.00
36.8000	6.57E-07	-18.1219	1.5234	-1.31E-08	0.00	2.54E+10	-0.07978	582912.	0.00
37.2000	5.86E-07	-11.7287	1.1593	-1.60E-08	0.00	2.54E+10	-0.07190	589248.	0.00
37.6000	5.04E-07	-6.9922	0.8367	-1.77E-08	0.00	2.54E+10	-0.06252	595584.	0.00
38.0000	4.16E-07	-3.6960	0.5616	-1.87E-08	0.00	2.54E+10	-0.05212	601920.	0.00
38.4000	3.24E-07	-1.6005	0.3380	-1.92E-08	0.00	2.54E+10	-0.04106	608256.	0.00

38.8000	2.31E-07	-0.4511	0.1685	-1.94E-08	0.00	2.54E+10	-0.02958	614592.	0.00
39.2000	1.38E-07	0.01685	0.05479	-1.95E-08	0.00	2.54E+10	-0.01779	620928.	0.00
39.6000	4.41E-08	0.07486	-0.00176	-1.95E-08	0.00	2.54E+10	-0.00577	627264.	0.00
40.0000	-4.92E-08	0.00	0.00	-1.94E-08	0.00	2.54E+10	0.00650	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 8:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =    -0.03371232 radians
Maximum bending moment            =       1068999. inch-lbs
Maximum shear force               =         25279. lbs
Depth of maximum bending moment   =     5.20000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =            119
Number of zero deflection points  =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 9

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                            =     0.250000 inches
Rotation of pile head                                =    0.000E+00 radians
Axial load on pile head                              =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	-894279.	28762.	0.00	0.00	3.04E+09	-32.4105	311.1412	0.00
0.4000	0.2466	-757030.	28425.	-0.00130	0.00	3.04E+09	-70.1796	1366.	0.00
0.8000	0.2375	-621399.	27975.	-0.00230	0.00	3.76E+09	-117.2251	2369.	0.00
1.2000	0.2246	-488468.	27279.	-0.00300	0.00	3.79E+09	-173.0404	3699.	0.00
1.6000	0.2087	-359524.	26296.	-0.00354	0.00	3.81E+09	-236.2576	5434.	0.00
2.0000	0.1906	-236023.	24999.	-0.00379	0.00	2.51E+10	-304.4601	7667.	0.00
2.4000	0.1723	-119537.	23369.	-0.00382	0.00	2.53E+10	-374.7024	10437.	0.00
2.8000	0.1539	-11684.	21402.	-0.00383	0.00	2.54E+10	-444.6382	13865.	0.00

3.2000	0.1355	85924.	19113.	-0.00383	0.00	2.53E+10	-509.1105	18032.	0.00
3.6000	0.1172	171802.	16539.	-0.00380	0.00	2.52E+10	-563.3524	23072.	0.00
4.0000	0.09903	244701.	13729.	-0.00376	0.00	2.51E+10	-607.4886	29445.	0.00
4.4000	0.08109	303603.	10746.	-0.00371	0.00	2.50E+10	-635.5599	37622.	0.00
4.8000	0.06342	347862.	7647.	-0.00346	0.00	3.81E+09	-655.6095	49619.	0.00
5.2000	0.04786	377016.	4484.	-0.00300	0.00	3.81E+09	-662.2393	66419.	0.00
5.6000	0.03458	390912.	1361.	-0.00252	0.00	3.81E+09	-638.9663	88704.	0.00
6.0000	0.02366	390086.	-1296.	-0.00203	0.00	3.81E+09	-468.4582	95040.	0.00
6.4000	0.01510	378466.	-3186.	-0.00154	0.00	3.81E+09	-318.9961	101376.	0.00
6.8000	0.00884	359497.	-4428.	-0.00108	0.00	3.81E+09	-198.3234	107712.	0.00
7.2000	0.00474	335959.	-5174.	-6.41E-04	0.00	3.82E+09	-112.7344	114048.	0.00
7.6000	0.00268	309823.	-5606.	-3.58E-04	0.00	1.03E+10	-67.2101	120384.	0.00
8.0000	0.00131	282139.	-5850.	-2.59E-04	0.00	2.51E+10	-34.4989	126720.	0.00
8.4000	1.93E-04	253659.	-5946.	-2.08E-04	0.00	2.51E+10	-5.3542	133056.	0.00
8.8000	-6.88E-04	225057.	-5911.	-1.62E-04	0.00	2.51E+10	19.9679	139392.	0.00
9.2000	-0.00136	196914.	-5764.	-1.22E-04	0.00	2.52E+10	41.3526	145728.	0.00
9.6000	-0.00186	169725.	-5523.	-8.68E-05	0.00	2.52E+10	58.8090	152064.	0.00
10.0000	-0.00220	143890.	-5208.	-5.70E-05	0.00	2.53E+10	72.4523	158400.	0.00
10.4000	-0.00240	119724.	-4837.	-3.19E-05	0.00	2.53E+10	82.4850	164736.	0.00
10.8000	-0.00250	97459.	-4425.	-1.13E-05	0.00	2.53E+10	89.1784	171072.	0.00
11.2000	-0.00251	77249.	-3988.	5.21E-06	0.00	2.53E+10	92.8543	177408.	0.00
11.6000	-0.00245	59178.	-3540.	1.81E-05	0.00	2.54E+10	93.8683	183744.	0.00
12.0000	-0.00234	43270.	-3092.	2.78E-05	0.00	2.54E+10	92.5952	190080.	0.00
12.4000	-0.00219	29495.	-2655.	3.47E-05	0.00	2.54E+10	89.4144	196416.	0.00
12.8000	-0.00201	17780.	-2237.	3.92E-05	0.00	2.54E+10	84.6995	202752.	0.00
13.2000	-0.00181	8017.	-1845.	4.16E-05	0.00	2.54E+10	78.8074	209088.	0.00
13.6000	-0.00161	69.3376	-1483.	4.24E-05	0.00	2.54E+10	72.0715	215424.	0.00
14.0000	-0.00140	-6218.	-1154.	4.18E-05	0.00	2.54E+10	64.7959	221760.	0.00
14.4000	-0.00120	-11012.	-861.3732	4.02E-05	0.00	2.54E+10	57.2515	228096.	0.00
14.8000	-0.00102	-14487.	-604.7551	3.77E-05	0.00	2.54E+10	49.6727	234432.	0.00
15.2000	-8.42E-04	-16817.	-384.1232	3.48E-05	0.00	2.54E+10	42.2572	240768.	0.00
15.6000	-6.83E-04	-18174.	-198.3078	3.15E-05	0.00	2.54E+10	35.1659	247104.	0.00
16.0000	-5.40E-04	-18721.	-45.4523	2.80E-05	0.00	2.54E+10	28.5239	253440.	0.00
16.4000	-4.14E-04	-18611.	76.8218	2.45E-05	0.00	2.54E+10	22.4236	259776.	0.00
16.8000	-3.05E-04	-17984.	171.2619	2.10E-05	0.00	2.54E+10	16.9265	266112.	0.00
17.2000	-2.13E-04	-16967.	240.8465	1.77E-05	0.00	2.54E+10	12.0671	272448.	0.00
17.6000	-1.35E-04	-15672.	288.6633	1.46E-05	0.00	2.54E+10	7.8566	278784.	0.00
18.0000	-7.22E-05	-14196.	317.8054	1.18E-05	0.00	2.54E+10	4.2860	285120.	0.00
18.4000	-2.19E-05	-12621.	331.2846	9.28E-06	0.00	2.54E+10	1.3304	291456.	0.00
18.8000	1.69E-05	-11015.	331.9624	7.04E-06	0.00	2.54E+10	-1.0479	297792.	0.00
19.2000	4.57E-05	-9434.	322.4976	5.11E-06	0.00	2.54E+10	-2.8958	304128.	0.00
19.6000	6.60E-05	-7919.	305.3084	3.47E-06	0.00	2.54E+10	-4.2664	310464.	0.00
20.0000	7.90E-05	-6503.	282.5493	2.11E-06	0.00	2.54E+10	-5.2166	316800.	0.00
20.4000	8.62E-05	-5207.	256.0993	1.00E-06	0.00	2.54E+10	-5.8043	323136.	0.00
20.8000	8.87E-05	-4044.	227.5605	1.30E-07	0.00	2.54E+10	-6.0869	329472.	0.00
21.2000	8.75E-05	-3022.	198.2653	-5.37E-07	0.00	2.54E+10	-6.1194	335808.	0.00
21.6000	8.35E-05	-2141.	169.2904	-1.02E-06	0.00	2.54E+10	-5.9534	342144.	0.00
22.0000	7.76E-05	-1397.	141.4755	-1.36E-06	0.00	2.54E+10	-5.6361	348480.	0.00

22.4000	7.05E-05	-782.8087	115.4460	-1.56E-06	0.00	2.54E+10	-5.2096	354816.	0.00
22.8000	6.26E-05	-288.6820	91.6374	-1.67E-06	0.00	2.54E+10	-4.7107	361152.	0.00
23.2000	5.45E-05	96.9099	70.3211	-1.68E-06	0.00	2.54E+10	-4.1711	367488.	0.00
23.6000	4.64E-05	386.4006	51.6303	-1.64E-06	0.00	2.54E+10	-3.6168	373824.	0.00
24.0000	3.88E-05	592.5603	35.5842	-1.55E-06	0.00	2.54E+10	-3.0691	380160.	0.00
24.4000	3.16E-05	728.0089	22.1122	-1.42E-06	0.00	2.54E+10	-2.5443	386496.	0.00
24.8000	2.51E-05	804.8374	11.0748	-1.28E-06	0.00	2.54E+10	-2.0546	392832.	0.00
25.2000	1.93E-05	834.3267	2.2831	-1.12E-06	0.00	2.54E+10	-1.6086	399168.	0.00
25.6000	1.43E-05	826.7548	-4.4843	-9.65E-07	0.00	2.54E+10	-1.2112	405504.	0.00
26.0000	1.01E-05	791.2773	-9.4669	-8.12E-07	0.00	2.54E+10	-0.8649	411840.	0.00
26.4000	6.54E-06	735.8725	-12.9104	-6.68E-07	0.00	2.54E+10	-0.5699	418176.	0.00
26.8000	3.67E-06	667.3372	-15.0571	-5.35E-07	0.00	2.54E+10	-0.3246	424512.	0.00
27.2000	1.40E-06	591.3241	-16.1384	-4.16E-07	0.00	2.54E+10	-0.1260	430848.	0.00
27.6000	-3.27E-07	512.4089	-16.3692	-3.12E-07	0.00	2.54E+10	0.02979	437184.	0.00
28.0000	-1.59E-06	434.1799	-15.9445	-2.23E-07	0.00	2.54E+10	0.1472	443520.	0.00
28.4000	-2.46E-06	359.3416	-15.0369	-1.48E-07	0.00	2.54E+10	0.2310	449856.	0.00
28.8000	-3.01E-06	289.8255	-13.7958	-8.64E-08	0.00	2.54E+10	0.2862	456192.	0.00
29.2000	-3.29E-06	226.9023	-12.3472	-3.76E-08	0.00	2.54E+10	0.3174	462528.	0.00
29.6000	-3.37E-06	171.2928	-10.7948	1.25E-11	0.00	2.54E+10	0.3294	468864.	0.00
30.0000	-3.29E-06	123.2718	-9.2217	2.78E-08	0.00	2.54E+10	0.3261	475200.	0.00
30.4000	-3.10E-06	82.7645	-7.6915	4.73E-08	0.00	2.54E+10	0.3115	481536.	0.00
30.8000	-2.84E-06	49.4332	-6.2512	5.98E-08	0.00	2.54E+10	0.2887	487872.	0.00
31.2000	-2.53E-06	22.7526	-4.9331	6.66E-08	0.00	2.54E+10	0.2606	494208.	0.00
31.6000	-2.20E-06	2.0754	-3.7570	6.89E-08	0.00	2.54E+10	0.2295	500544.	0.00
32.0000	-1.87E-06	-13.3145	-2.7326	6.79E-08	0.00	2.54E+10	0.1973	506880.	0.00
32.4000	-1.55E-06	-24.1576	-1.8615	6.43E-08	0.00	2.54E+10	0.1656	513216.	0.00
32.8000	-1.25E-06	-31.1848	-1.1390	5.91E-08	0.00	2.54E+10	0.1354	519552.	0.00
33.2000	-9.81E-07	-35.0921	-0.5560	5.29E-08	0.00	2.54E+10	0.1075	525888.	0.00
33.6000	-7.44E-07	-36.5220	-0.1000	4.61E-08	0.00	2.54E+10	0.08245	532224.	0.00
34.0000	-5.39E-07	-36.0522	0.2430	3.92E-08	0.00	2.54E+10	0.06047	538560.	0.00
34.4000	-3.67E-07	-34.1891	0.4881	3.26E-08	0.00	2.54E+10	0.04165	544896.	0.00
34.8000	-2.26E-07	-31.3664	0.6503	2.64E-08	0.00	2.54E+10	0.02595	551232.	0.00
35.2000	-1.13E-07	-27.9459	0.7442	2.08E-08	0.00	2.54E+10	0.01317	557568.	0.00
35.6000	-2.61E-08	-24.2220	0.7832	1.59E-08	0.00	2.54E+10	0.00307	563904.	0.00
36.0000	3.91E-08	-20.4273	0.7794	1.17E-08	0.00	2.54E+10	-0.00465	570240.	0.00
36.4000	8.58E-08	-16.7397	0.7435	8.15E-09	0.00	2.54E+10	-0.01031	576576.	0.00
36.8000	1.17E-07	-13.2896	0.6846	5.32E-09	0.00	2.54E+10	-0.01426	582912.	0.00
37.2000	1.37E-07	-10.1680	0.6100	3.10E-09	0.00	2.54E+10	-0.01680	589248.	0.00
37.6000	1.47E-07	-7.4335	0.5259	1.44E-09	0.00	2.54E+10	-0.01826	595584.	0.00
38.0000	1.51E-07	-5.1198	0.4367	2.54E-10	0.00	2.54E+10	-0.01890	601920.	0.00
38.4000	1.50E-07	-3.2415	0.3458	-5.36E-10	0.00	2.54E+10	-0.01896	608256.	0.00
38.8000	1.46E-07	-1.8001	0.2556	-1.01E-09	0.00	2.54E+10	-0.01864	614592.	0.00
39.2000	1.40E-07	-0.7881	0.1674	-1.26E-09	0.00	2.54E+10	-0.01810	620928.	0.00
39.6000	1.34E-07	-0.1930	0.08209	-1.35E-09	0.00	2.54E+10	-0.01745	627264.	0.00
40.0000	1.27E-07	0.00	0.00	-1.37E-09	0.00	2.54E+10	-0.01676	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses

are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 9:

```
Pile-head deflection               =     0.25000000 inches
Computed slope at pile head        =       0.000000 radians
Maximum bending moment             =       -894279. inch-lbs
Maximum shear force                =         28762. lbs
Depth of maximum bending moment    =       0.000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             29
Number of zero deflection points   =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 10

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                               =     0.500000 inches
Rotation of pile head                                   =    0.000E+00 radians
Axial load on pile head                                 =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	-1059144.	34649.	0.00	0.00	1.31E+09	-17.5000	84.0000	0.00
0.4000	0.4907	-893542.	34352.	-0.00357	0.00	1.31E+09	-61.8666	605.1682	0.00
0.8000	0.4657	-729365.	33929.	-0.00567	0.00	3.74E+09	-114.5115	1180.	0.00
1.2000	0.4363	-567826.	33240.	-0.00650	0.00	3.77E+09	-172.6100	1899.	0.00
1.6000	0.4033	-410265.	32258.	-0.00712	0.00	3.80E+09	-236.3202	2812.	0.00
2.0000	0.3679	-258148.	30953.	-0.00740	0.00	2.51E+10	-307.4696	4011.	0.00
2.4000	0.3323	-113116.	29281.	-0.00744	0.00	2.53E+10	-389.0966	5621.	0.00
2.8000	0.2965	22952.	27188.	-0.00745	0.00	2.54E+10	-483.2490	7823.	0.00
3.2000	0.2608	147886.	24659.	-0.00743	0.00	2.52E+10	-570.3943	10500.	0.00
3.6000	0.2251	259678.	21727.	-0.00739	0.00	2.51E+10	-651.2513	13884.	0.00
4.0000	0.1898	356465.	18436.	-0.00714	0.00	3.81E+09	-719.8923	18208.	0.00
4.4000	0.1566	436665.	14860.	-0.00664	0.00	3.80E+09	-770.3516	23617.	0.00
4.8000	0.1260	499117.	11064.	-0.00605	0.00	3.79E+09	-811.0337	30895.	0.00
5.2000	0.09848	542883.	7110.	-0.00539	0.00	3.78E+09	-836.5483	40774.	0.00
5.6000	0.07427	567374.	3088.	-0.00468	0.00	3.77E+09	-839.2882	54246.	0.00

6.0000	0.05351	572529.	-881.5544	-0.00396	0.00	3.77E+09	-814.7362	73079.	0.00
6.4000	0.03626	558911.	-4675.	-0.00324	0.00	3.78E+09	-765.7956	101376.	0.00
6.8000	0.02242	527650.	-7720.	-0.00255	0.00	3.78E+09	-503.0092	107712.	0.00
7.2000	0.01179	484800.	-9599.	-0.00191	0.00	3.79E+09	-280.0681	114048.	0.00
7.6000	0.00411	435496.	-10519.	-0.00132	0.00	3.80E+09	-102.9980	120384.	0.00
8.0000	-9.32E-04	383820.	-10707.	-8.08E-04	0.00	3.81E+09	24.6094	126720.	0.00
8.4000	-0.00365	332711.	-10405.	-3.57E-04	0.00	3.82E+09	101.1407	133056.	0.00
8.8000	-0.00436	283932.	-9859.	-1.20E-04	0.00	2.51E+10	126.5181	139392.	0.00
9.2000	-0.00480	238068.	-9205.	-7.04E-05	0.00	2.51E+10	145.8374	145728.	0.00
9.6000	-0.00503	195564.	-8472.	-2.90E-05	0.00	2.52E+10	159.4185	152064.	0.00
10.0000	-0.00508	156733.	-7687.	4.58E-06	0.00	2.52E+10	167.6975	158400.	0.00
10.4000	-0.00499	121766.	-6874.	3.10E-05	0.00	2.53E+10	171.1959	164736.	0.00
10.8000	-0.00478	90743.	-6054.	5.12E-05	0.00	2.53E+10	170.4926	171072.	0.00
11.2000	-0.00450	63648.	-5246.	6.58E-05	0.00	2.54E+10	166.1982	177408.	0.00
11.6000	-0.00415	40382.	-4466.	7.57E-05	0.00	2.54E+10	158.9328	183744.	0.00
12.0000	-0.00377	20779.	-3726.	8.14E-05	0.00	2.54E+10	149.3059	190080.	0.00
12.4000	-0.00337	4615.	-3036.	8.38E-05	0.00	2.54E+10	137.9008	196416.	0.00
12.8000	-0.00297	-8371.	-2405.	8.35E-05	0.00	2.54E+10	125.2621	202752.	0.00
13.2000	-0.00257	-18472.	-1836.	8.09E-05	0.00	2.54E+10	111.8860	209088.	0.00
13.6000	-0.00219	-25994.	-1331.	7.67E-05	0.00	2.54E+10	98.2138	215424.	0.00
14.0000	-0.00183	-31254.	-892.6696	7.13E-05	0.00	2.54E+10	84.6269	221760.	0.00
14.4000	-0.00150	-34564.	-518.0964	6.51E-05	0.00	2.54E+10	71.4453	228096.	0.00
14.8000	-0.00121	-36228.	-205.2001	5.84E-05	0.00	2.54E+10	58.9282	234432.	0.00
15.2000	-9.42E-04	-36534.	49.6890	5.16E-05	0.00	2.54E+10	47.2756	240768.	0.00
15.6000	-7.12E-04	-35751.	251.0679	4.47E-05	0.00	2.54E+10	36.6322	247104.	0.00
16.0000	-5.13E-04	-34124.	404.0049	3.81E-05	0.00	2.54E+10	27.0915	253440.	0.00
16.4000	-3.46E-04	-31872.	513.9088	3.19E-05	0.00	2.54E+10	18.7018	259776.	0.00
16.8000	-2.07E-04	-29190.	586.3261	2.61E-05	0.00	2.54E+10	11.4721	266112.	0.00
17.2000	-9.48E-05	-26244.	626.7682	2.09E-05	0.00	2.54E+10	5.3788	272448.	0.00
17.6000	-6.40E-06	-23173.	640.5687	1.62E-05	0.00	2.54E+10	0.3715	278784.	0.00
18.0000	6.10E-05	-20094.	632.7699	1.21E-05	0.00	2.54E+10	-3.6210	285120.	0.00
18.4000	1.10E-04	-17099.	608.0358	8.62E-06	0.00	2.54E+10	-6.6849	291456.	0.00
18.8000	1.44E-04	-14257.	570.5924	5.66E-06	0.00	2.54E+10	-8.9166	297792.	0.00
19.2000	1.64E-04	-11621.	524.1896	3.22E-06	0.00	2.54E+10	-10.4179	304128.	0.00
19.6000	1.75E-04	-9225.	472.0849	1.25E-06	0.00	2.54E+10	-11.2924	310464.	0.00
20.0000	1.76E-04	-7089.	417.0434	-2.95E-07	0.00	2.54E+10	-11.6416	316800.	0.00
20.4000	1.72E-04	-5221.	361.3529	-1.46E-06	0.00	2.54E+10	-11.5628	323136.	0.00
20.8000	1.62E-04	-3620.	306.8498	-2.29E-06	0.00	2.54E+10	-11.1468	329472.	0.00
21.2000	1.50E-04	-2275.	254.9538	-2.85E-06	0.00	2.54E+10	-10.4765	335808.	0.00
21.6000	1.35E-04	-1172.	206.7086	-3.18E-06	0.00	2.54E+10	-9.6257	342144.	0.00
22.0000	1.19E-04	-291.0505	162.8256	-3.31E-06	0.00	2.54E+10	-8.6589	348480.	0.00
22.4000	1.03E-04	390.7616	123.7299	-3.30E-06	0.00	2.54E+10	-7.6309	354816.	0.00
22.8000	8.76E-05	896.7568	89.6061	-3.18E-06	0.00	2.54E+10	-6.5873	361152.	0.00
23.2000	7.27E-05	1251.	60.4416	-2.98E-06	0.00	2.54E+10	-5.5646	367488.	0.00
23.6000	5.89E-05	1477.	36.0686	-2.72E-06	0.00	2.54E+10	-4.5909	373824.	0.00
24.0000	4.66E-05	1597.	16.2016	-2.43E-06	0.00	2.54E+10	-3.6870	380160.	0.00
24.4000	3.56E-05	1633.	0.4719	-2.13E-06	0.00	2.54E+10	-2.8670	386496.	0.00
24.8000	2.61E-05	1602.	-11.5434	-1.82E-06	0.00	2.54E+10	-2.1393	392832.	0.00

25.2000	1.81E-05	1522.	-20.2956	-1.53E-06	0.00	2.54E+10	-1.5074	399168.	0.00
25.6000	1.15E-05	1407.	-26.2435	-1.25E-06	0.00	2.54E+10	-0.9709	405504.	0.00
26.0000	6.13E-06	1270.	-29.8369	-9.96E-07	0.00	2.54E+10	-0.5263	411840.	0.00
26.4000	1.93E-06	1120.	-31.5031	-7.71E-07	0.00	2.54E+10	-0.1679	418176.	0.00
26.8000	-1.26E-06	967.3476	-31.6381	-5.73E-07	0.00	2.54E+10	0.1117	424512.	0.00
27.2000	-3.58E-06	816.7716	-30.5995	-4.05E-07	0.00	2.54E+10	0.3210	430848.	0.00
27.6000	-5.15E-06	673.5921	-28.7034	-2.64E-07	0.00	2.54E+10	0.4690	437184.	0.00
28.0000	-6.11E-06	541.2189	-26.2224	-1.49E-07	0.00	2.54E+10	0.5647	443520.	0.00
28.4000	-6.58E-06	421.8569	-23.3864	-5.84E-08	0.00	2.54E+10	0.6170	449856.	0.00
28.8000	-6.67E-06	316.7097	-20.3838	1.14E-08	0.00	2.54E+10	0.6341	456192.	0.00
29.2000	-6.47E-06	226.1721	-17.3649	6.27E-08	0.00	2.54E+10	0.6238	462528.	0.00
29.6000	-6.07E-06	150.0068	-14.4447	9.82E-08	0.00	2.54E+10	0.5929	468864.	0.00
30.0000	-5.53E-06	87.5028	-11.7076	1.21E-07	0.00	2.54E+10	0.5475	475200.	0.00
30.4000	-4.91E-06	37.6141	-9.2108	1.32E-07	0.00	2.54E+10	0.4928	481536.	0.00
30.8000	-4.26E-06	-0.9212	-6.9892	1.36E-07	0.00	2.54E+10	0.4329	487872.	0.00
31.2000	-3.61E-06	-29.4826	-5.0590	1.33E-07	0.00	2.54E+10	0.3714	494208.	0.00
31.6000	-2.98E-06	-49.4875	-3.4215	1.26E-07	0.00	2.54E+10	0.3109	500544.	0.00
32.0000	-2.40E-06	-62.3285	-2.0666	1.15E-07	0.00	2.54E+10	0.2536	506880.	0.00
32.4000	-1.88E-06	-69.3273	-0.9763	1.03E-07	0.00	2.54E+10	0.2007	513216.	0.00
32.8000	-1.42E-06	-71.7013	-0.1267	8.93E-08	0.00	2.54E+10	0.1533	519552.	0.00
33.2000	-1.02E-06	-70.5435	0.5095	7.58E-08	0.00	2.54E+10	0.1118	525888.	0.00
33.6000	-6.88E-07	-66.8103	0.9609	6.29E-08	0.00	2.54E+10	0.07630	532224.	0.00
34.0000	-4.17E-07	-61.3192	1.2562	5.08E-08	0.00	2.54E+10	0.04675	538560.	0.00
34.4000	-2.01E-07	-54.7511	1.4230	3.98E-08	0.00	2.54E+10	0.02279	544896.	0.00
34.8000	-3.45E-08	-47.6580	1.4872	3.01E-08	0.00	2.54E+10	0.00396	551232.	0.00
35.2000	8.85E-08	-40.4736	1.4721	2.18E-08	0.00	2.54E+10	-0.01029	557568.	0.00
35.6000	1.75E-07	-33.5262	1.3981	1.48E-08	0.00	2.54E+10	-0.02055	563904.	0.00
36.0000	2.31E-07	-27.0522	1.2829	9.10E-09	0.00	2.54E+10	-0.02742	570240.	0.00
36.4000	2.62E-07	-21.2099	1.1415	4.54E-09	0.00	2.54E+10	-0.03150	576576.	0.00
36.8000	2.74E-07	-16.0934	0.9860	1.02E-09	0.00	2.54E+10	-0.03332	582912.	0.00
37.2000	2.72E-07	-11.7446	0.8259	-1.61E-09	0.00	2.54E+10	-0.03339	589248.	0.00
37.6000	2.59E-07	-8.1651	0.6686	-3.49E-09	0.00	2.54E+10	-0.03212	595584.	0.00
38.0000	2.38E-07	-5.3256	0.5198	-4.77E-09	0.00	2.54E+10	-0.02990	601920.	0.00
38.4000	2.13E-07	-3.1750	0.3832	-5.57E-09	0.00	2.54E+10	-0.02701	608256.	0.00
38.8000	1.85E-07	-1.6467	0.2616	-6.03E-09	0.00	2.54E+10	-0.02368	614592.	0.00
39.2000	1.55E-07	-0.6639	0.1566	-6.25E-09	0.00	2.54E+10	-0.02008	620928.	0.00
39.6000	1.25E-07	-0.1438	0.06915	-6.32E-09	0.00	2.54E+10	-0.01633	627264.	0.00
40.0000	9.46E-08	0.00	0.00	-6.34E-09	0.00	2.54E+10	-0.01248	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 10:

```
Pile-head deflection               =     0.50000000 inches
Computed slope at pile head        =       0.000000 radians
Maximum bending moment             =      -1059144. inch-lbs
Maximum shear force                =         34649. lbs
Depth of maximum bending moment    =       0.000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             24
Number of zero deflection points   =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 11

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.750000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	-1068227.	37664.	0.00	0.00	7.65E+08	0.00	0.00	0.00
0.4000	0.7339	-888021.	37422.	-0.00614	0.00	7.65E+08	-50.3785	329.4906	0.00
0.8000	0.6911	-708975.	37041.	-0.00938	0.00	3.75E+09	-108.6112	754.3815	0.00
1.2000	0.6439	-532431.	36370.	-0.01017	0.00	3.78E+09	-170.8124	1273.	0.00
1.6000	0.5934	-359823.	35398.	-0.01074	0.00	3.81E+09	-234.0191	1893.	0.00
2.0000	0.5408	-192607.	34117.	-0.01098	0.00	2.52E+10	-299.6822	2660.	0.00
2.4000	0.4880	-32296.	32506.	-0.01100	0.00	2.54E+10	-371.8829	3658.	0.00
2.8000	0.4352	119448.	30518.	-0.01099	0.00	2.53E+10	-456.2692	5032.	0.00
3.2000	0.3825	260679.	28087.	-0.01096	0.00	2.51E+10	-556.5491	6985.	0.00
3.6000	0.3300	389087.	25123.	-0.01069	0.00	3.81E+09	-678.6982	9872.	0.00
4.0000	0.2799	501857.	21582.	-0.01012	0.00	3.79E+09	-796.7256	13664.	0.00
4.4000	0.2328	596272.	17593.	-0.00943	0.00	3.77E+09	-865.0874	17836.	0.00
4.8000	0.1894	670754.	13309.	-0.00862	0.00	3.75E+09	-920.1988	23321.	0.00
5.2000	0.1501	724035.	8799.	-0.00772	0.00	3.74E+09	-958.8414	30664.	0.00
5.6000	0.1152	755225.	4160.	-0.00677	0.00	3.74E+09	-974.2094	40575.	0.00
6.0000	0.08506	763969.	-484.3713	-0.00580	0.00	3.73E+09	-960.8283	54220.	0.00
6.4000	0.05959	750575.	-5050.	-0.00482	0.00	3.74E+09	-941.4040	75833.	0.00
6.8000	0.03874	715491.	-9396.	-0.00388	0.00	3.74E+09	-869.4112	107712.	0.00
7.2000	0.02230	660376.	-12754.	-0.00300	0.00	3.76E+09	-529.9162	114048.	0.00
7.6000	0.00991	593052.	-14623.	-0.00220	0.00	3.77E+09	-248.6375	120384.	0.00
8.0000	0.00115	520000.	-15292.	-0.00150	0.00	3.78E+09	-30.3728	126720.	0.00
8.4000	-0.00445	446247.	-15069.	-8.84E-04	0.00	3.80E+09	123.2293	133056.	0.00

8.8000	-0.00733	375334.	-14263.	-3.65E-04	0.00	3.81E+09	212.9574	139392.	0.00
9.2000	-0.00795	309327.	-13172.	-7.45E-05	0.00	1.37E+10	241.3859	145728.	0.00
9.6000	-0.00805	248881.	-11981.	3.36E-06	0.00	2.51E+10	254.9877	152064.	0.00
10.0000	-0.00792	194311.	-10742.	4.57E-05	0.00	2.52E+10	261.3106	158400.	0.00
10.4000	-0.00761	145761.	-9488.	7.81E-05	0.00	2.52E+10	261.1874	164736.	0.00
10.8000	-0.00717	103229.	-8248.	1.02E-04	0.00	2.53E+10	255.5100	171072.	0.00
11.2000	-0.00663	66584.	-7046.	1.18E-04	0.00	2.54E+10	245.1944	177408.	0.00
11.6000	-0.00604	35588.	-5903.	1.27E-04	0.00	2.54E+10	231.1501	183744.	0.00
12.0000	-0.00541	9918.	-4834.	1.32E-04	0.00	2.54E+10	214.2550	190080.	0.00
12.4000	-0.00477	-10815.	-3851.	1.32E-04	0.00	2.54E+10	195.3342	196416.	0.00
12.8000	-0.00415	-27049.	-2962.	1.28E-04	0.00	2.54E+10	175.1462	202752.	0.00
13.2000	-0.00354	-39246.	-2171.	1.22E-04	0.00	2.54E+10	154.3710	209088.	0.00
13.6000	-0.00298	-47887.	-1480.	1.14E-04	0.00	2.54E+10	133.6032	215424.	0.00
14.0000	-0.00245	-53450.	-886.8987	1.04E-04	0.00	2.54E+10	113.3470	221760.	0.00
14.4000	-0.00198	-56402.	-389.2291	9.36E-05	0.00	2.54E+10	94.0153	228096.	0.00
14.8000	-0.00155	-57187.	18.6428	8.29E-05	0.00	2.54E+10	75.9313	234432.	0.00
15.2000	-0.00118	-56223.	343.2789	7.21E-05	0.00	2.54E+10	59.3337	240768.	0.00
15.6000	-8.62E-04	-53891.	592.1993	6.17E-05	0.00	2.54E+10	44.3831	247104.	0.00
16.0000	-5.90E-04	-50538.	773.5255	5.18E-05	0.00	2.54E+10	31.1695	253440.	0.00
16.4000	-3.64E-04	-46466.	895.6645	4.27E-05	0.00	2.54E+10	19.7217	259776.	0.00
16.8000	-1.81E-04	-41939.	967.0347	3.43E-05	0.00	2.54E+10	10.0159	266112.	0.00
17.2000	-3.50E-05	-37182.	995.8378	2.68E-05	0.00	2.54E+10	1.9854	272448.	0.00
17.6000	7.70E-05	-32379.	989.8733	2.03E-05	0.00	2.54E+10	-4.4706	278784.	0.00
18.0000	1.60E-04	-27679.	956.3970	1.46E-05	0.00	2.54E+10	-9.4779	285120.	0.00
18.4000	2.17E-04	-23198.	902.0197	9.79E-06	0.00	2.54E+10	-13.1793	291456.	0.00
18.8000	2.54E-04	-19020.	832.6436	5.80E-06	0.00	2.54E+10	-15.7274	297792.	0.00
19.2000	2.73E-04	-15204.	753.4280	2.57E-06	0.00	2.54E+10	-17.2791	304128.	0.00
19.6000	2.78E-04	-11787.	668.7830	1.60E-08	0.00	2.54E+10	-17.9897	310464.	0.00
20.0000	2.73E-04	-8784.	582.3858	-1.93E-06	0.00	2.54E+10	-18.0092	316800.	0.00
20.4000	2.60E-04	-6196.	497.2152	-3.34E-06	0.00	2.54E+10	-17.4786	323136.	0.00
20.8000	2.41E-04	-4011.	415.6011	-4.31E-06	0.00	2.54E+10	-16.5274	329472.	0.00
21.2000	2.18E-04	-2206.	339.2827	-4.89E-06	0.00	2.54E+10	-15.2720	335808.	0.00
21.6000	1.94E-04	-753.6506	269.4750	-5.17E-06	0.00	2.54E+10	-13.8146	342144.	0.00
22.0000	1.69E-04	380.6852	206.9368	-5.21E-06	0.00	2.54E+10	-12.2430	348480.	0.00
22.4000	1.44E-04	1233.	152.0408	-5.06E-06	0.00	2.54E+10	-10.6304	354816.	0.00
22.8000	1.20E-04	1840.	104.8405	-4.77E-06	0.00	2.54E+10	-9.0364	361152.	0.00
23.2000	9.81E-05	2239.	65.1349	-4.38E-06	0.00	2.54E+10	-7.5076	367488.	0.00
23.6000	7.81E-05	2466.	32.5277	-3.94E-06	0.00	2.54E+10	-6.0787	373824.	0.00
24.0000	6.03E-05	2552.	6.4809	-3.46E-06	0.00	2.54E+10	-4.7741	380160.	0.00
24.4000	4.48E-05	2528.	-13.6382	-2.98E-06	0.00	2.54E+10	-3.6089	386496.	0.00
24.8000	3.17E-05	2421.	-28.5165	-2.51E-06	0.00	2.54E+10	-2.5904	392832.	0.00
25.2000	2.07E-05	2254.	-38.8609	-2.07E-06	0.00	2.54E+10	-1.7197	399168.	0.00
25.6000	1.18E-05	2048.	-45.3709	-1.67E-06	0.00	2.54E+10	-0.9928	405504.	0.00
26.0000	4.68E-06	1818.	-48.7172	-1.30E-06	0.00	2.54E+10	-0.4015	411840.	0.00
26.4000	-7.43E-07	1580.	-49.5256	-9.80E-07	0.00	2.54E+10	0.06471	418176.	0.00
26.8000	-4.73E-06	1343.	-48.3657	-7.04E-07	0.00	2.54E+10	0.4186	424512.	0.00
27.2000	-7.50E-06	1116.	-45.7444	-4.72E-07	0.00	2.54E+10	0.6736	430848.	0.00
27.6000	-9.27E-06	903.8768	-42.1023	-2.81E-07	0.00	2.54E+10	0.8439	437184.	0.00

28.0000	-1.02E-05	711.5076	-37.8136	-1.29E-07	0.00	2.54E+10	0.9431	443520.	0.00
28.4000	-1.05E-05	540.8666	-33.1880	-1.05E-08	0.00	2.54E+10	0.9843	449856.	0.00
28.8000	-1.03E-05	392.9029	-28.4747	7.77E-08	0.00	2.54E+10	0.9796	456192.	0.00
29.2000	-9.76E-06	267.5094	-23.8674	1.40E-07	0.00	2.54E+10	0.9401	462528.	0.00
29.6000	-8.96E-06	163.7762	-19.5099	1.81E-07	0.00	2.54E+10	0.8755	468864.	0.00
30.0000	-8.02E-06	80.2142	-15.5030	2.04E-07	0.00	2.54E+10	0.7940	475200.	0.00
30.4000	-7.01E-06	14.9470	-11.9105	2.13E-07	0.00	2.54E+10	0.7028	481536.	0.00
30.8000	-5.98E-06	-34.1270	-8.7656	2.11E-07	0.00	2.54E+10	0.6076	487872.	0.00
31.2000	-4.98E-06	-69.2031	-6.0769	2.01E-07	0.00	2.54E+10	0.5127	494208.	0.00
31.6000	-4.05E-06	-92.4655	-3.8339	1.86E-07	0.00	2.54E+10	0.4219	500544.	0.00
32.0000	-3.19E-06	-106.0085	-2.0118	1.67E-07	0.00	2.54E+10	0.3373	506880.	0.00
32.4000	-2.44E-06	-111.7791	-0.5761	1.47E-07	0.00	2.54E+10	0.2609	513216.	0.00
32.8000	-1.79E-06	-111.5393	0.5140	1.26E-07	0.00	2.54E+10	0.1934	519552.	0.00
33.2000	-1.23E-06	-106.8443	1.3027	1.05E-07	0.00	2.54E+10	0.1352	525888.	0.00
33.6000	-7.79E-07	-99.0337	1.8345	8.55E-08	0.00	2.54E+10	0.08637	532224.	0.00
34.0000	-4.13E-07	-89.2331	2.1531	6.77E-08	0.00	2.54E+10	0.04639	538560.	0.00
34.4000	-1.29E-07	-78.3638	2.2995	5.19E-08	0.00	2.54E+10	0.01462	544896.	0.00
34.8000	8.47E-08	-67.1576	2.3113	3.81E-08	0.00	2.54E+10	-0.00973	551232.	0.00
35.2000	2.37E-07	-56.1756	2.2217	2.65E-08	0.00	2.54E+10	-0.02758	557568.	0.00
35.6000	3.39E-07	-45.8289	2.0599	1.69E-08	0.00	2.54E+10	-0.03984	563904.	0.00
36.0000	3.99E-07	-36.4001	1.8505	9.10E-09	0.00	2.54E+10	-0.04743	570240.	0.00
36.4000	4.26E-07	-28.0641	1.6137	3.01E-09	0.00	2.54E+10	-0.05122	576576.	0.00
36.8000	4.28E-07	-20.9083	1.3660	-1.62E-09	0.00	2.54E+10	-0.05199	582912.	0.00
37.2000	4.11E-07	-14.9504	1.1202	-5.01E-09	0.00	2.54E+10	-0.05044	589248.	0.00
37.6000	3.80E-07	-10.1546	0.8860	-7.38E-09	0.00	2.54E+10	-0.04716	595584.	0.00
38.0000	3.40E-07	-6.4453	0.6704	-8.95E-09	0.00	2.54E+10	-0.04264	601920.	0.00
38.4000	2.94E-07	-3.7185	0.4786	-9.91E-09	0.00	2.54E+10	-0.03728	608256.	0.00
38.8000	2.45E-07	-1.8505	0.3139	-1.04E-08	0.00	2.54E+10	-0.03136	614592.	0.00
39.2000	1.94E-07	-0.7051	0.1784	-1.07E-08	0.00	2.54E+10	-0.02510	620928.	0.00
39.6000	1.42E-07	-0.1381	0.07345	-1.08E-08	0.00	2.54E+10	-0.01862	627264.	0.00
40.0000	9.08E-08	0.00	0.00	-1.08E-08	0.00	2.54E+10	-0.01199	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 11:

```
Pile-head deflection            =     0.75000000 inches
Computed slope at pile head     =       0.000000 radians
Maximum bending moment          =      -1068227. inch-lbs
Maximum shear force             =         37664. lbs
Depth of maximum bending moment =       0.000000 feet below pile head
Depth of maximum shear force    =       0.000000 feet below pile head
```

Number of iterations = 46
Number of zero deflection points = 4

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 12

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.000000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	-1068240.	39303.	0.00	0.00	5.39E+08	0.00	0.00	0.00
0.4000	0.9772	-880168.	39061.	-0.00867	0.00	5.39E+08	-50.3785	247.4660	0.00
0.8000	0.9167	-693256.	38679.	-0.01304	0.00	3.75E+09	-108.6111	568.6896	0.00
1.2000	0.8520	-508846.	38009.	-0.01380	0.00	3.78E+09	-170.5426	960.7792	0.00
1.6000	0.7842	-328366.	37041.	-0.01433	0.00	3.82E+09	-233.0304	1426.	0.00
2.0000	0.7144	-153255.	35777.	-0.01455	0.00	2.52E+10	-293.6359	1973.	0.00
2.4000	0.6445	15091.	34221.	-0.01457	0.00	2.54E+10	-354.5844	2641.	0.00
2.8000	0.5746	175268.	32344.	-0.01455	0.00	2.52E+10	-427.7012	3573.	0.00
3.2000	0.5048	325590.	30081.	-0.01433	0.00	3.82E+09	-515.1443	4898.	0.00
3.6000	0.4371	464043.	27348.	-0.01383	0.00	3.79E+09	-623.6936	6850.	0.00
4.0000	0.3721	588126.	24026.	-0.01316	0.00	3.77E+09	-760.4014	9809.	0.00
4.4000	0.3107	694690.	19988.	-0.01234	0.00	3.75E+09	-921.8967	14242.	0.00
4.8000	0.2536	780013.	15358.	-0.01139	0.00	3.73E+09	-1007.	19066.	0.00
5.2000	0.2013	842127.	10410.	-0.01030	0.00	3.43E+09	-1055.	25141.	0.00
5.6000	0.1547	879945.	5295.	-0.00904	0.00	3.14E+09	-1077.	33403.	0.00
6.0000	0.1145	892959.	147.6579	-0.00766	0.00	3.05E+09	-1068.	44765.	0.00
6.4000	0.08112	881362.	-4937.	-0.00629	0.00	3.13E+09	-1050.	62153.	0.00
6.8000	0.05420	845564.	-9874.	-0.00501	0.00	3.40E+09	-1007.	89137.	0.00
7.2000	0.03301	786575.	-14172.	-0.00391	0.00	3.72E+09	-784.3797	114048.	0.00
7.6000	0.01669	709514.	-17059.	-0.00295	0.00	3.75E+09	-418.6721	120384.	0.00
8.0000	0.00474	622806.	-18364.	-0.00209	0.00	3.76E+09	-125.1166	126720.	0.00
8.4000	-0.00340	533216.	-18438.	-0.00136	0.00	3.78E+09	94.2819	133056.	0.00
8.8000	-0.00829	445798.	-17634.	-7.37E-04	0.00	3.80E+09	240.7918	139392.	0.00
9.2000	-0.01048	363928.	-16293.	-2.26E-04	0.00	3.81E+09	318.0745	145728.	0.00
9.6000	-0.01046	289387.	-14734.	3.09E-05	0.00	2.50E+10	331.4277	152064.	0.00
10.0000	-0.01018	222482.	-13132.	7.98E-05	0.00	2.51E+10	335.9559	158400.	0.00
10.4000	-0.00970	163317.	-11527.	1.17E-04	0.00	2.52E+10	332.7443	164736.	0.00
10.8000	-0.00906	111818.	-9954.	1.43E-04	0.00	2.53E+10	322.9351	171072.	0.00
11.2000	-0.00832	67760.	-8440.	1.60E-04	0.00	2.54E+10	307.6869	177408.	0.00

11.6000	-0.00753	30791.	-7010.	1.69E-04	0.00	2.54E+10	288.1383	183744.	0.00
12.0000	-0.00670	460.4458	-5682.	1.72E-04	0.00	2.54E+10	265.3780	190080.	0.00
12.4000	-0.00588	-23756.	-4468.	1.70E-04	0.00	2.54E+10	240.4208	196416.	0.00
12.8000	-0.00507	-42432.	-3377.	1.64E-04	0.00	2.54E+10	214.1928	202752.	0.00
13.2000	-0.00430	-56174.	-2413.	1.54E-04	0.00	2.54E+10	187.5182	209088.	0.00
13.6000	-0.00359	-65595.	-1576.	1.43E-04	0.00	2.54E+10	161.1109	215424.	0.00
14.0000	-0.00293	-71305.	-864.0752	1.30E-04	0.00	2.54E+10	135.5691	221760.	0.00
14.4000	-0.00234	-73890.	-271.4053	1.16E-04	0.00	2.53E+10	111.3767	228096.	0.00
14.8000	-0.00182	-73910.	209.2720	1.02E-04	0.00	2.53E+10	88.9055	234432.	0.00
15.2000	-0.00136	-71881.	586.8591	8.82E-05	0.00	2.53E+10	68.4225	240768.	0.00
15.6000	-9.73E-04	-68276.	871.3090	7.50E-05	0.00	2.54E+10	50.0983	247104.	0.00
16.0000	-6.44E-04	-63517.	1073.	6.25E-05	0.00	2.54E+10	34.0179	253440.	0.00
16.4000	-3.73E-04	-57974.	1203.	5.10E-05	0.00	2.54E+10	20.1917	259776.	0.00
16.8000	-1.55E-04	-51965.	1272.	4.06E-05	0.00	2.54E+10	8.5686	266112.	0.00
17.2000	1.68E-05	-45759.	1291.	3.14E-05	0.00	2.54E+10	-0.9533	272448.	0.00
17.6000	1.47E-04	-39576.	1268.	2.33E-05	0.00	2.54E+10	-8.5150	278784.	0.00
18.0000	2.41E-04	-33588.	1213.	1.64E-05	0.00	2.54E+10	-14.2864	285120.	0.00
18.4000	3.04E-04	-27929.	1135.	1.06E-05	0.00	2.54E+10	-18.4559	291456.	0.00
18.8000	3.42E-04	-22696.	1039.	5.80E-06	0.00	2.54E+10	-21.2218	297792.	0.00
19.2000	3.60E-04	-17952.	933.7218	1.96E-06	0.00	2.54E+10	-22.7843	304128.	0.00
19.6000	3.61E-04	-13732.	823.0230	-1.04E-06	0.00	2.54E+10	-23.3402	310464.	0.00
20.0000	3.50E-04	-10051.	711.6204	-3.28E-06	0.00	2.54E+10	-23.0776	316800.	0.00
20.4000	3.29E-04	-6901.	603.0218	-4.88E-06	0.00	2.54E+10	-22.1719	323136.	0.00
20.8000	3.03E-04	-4262.	499.9301	-5.94E-06	0.00	2.54E+10	-20.7830	329472.	0.00
21.2000	2.72E-04	-2102.	404.3221	-6.54E-06	0.00	2.54E+10	-19.0537	335808.	0.00
21.6000	2.40E-04	-380.2991	317.5337	-6.77E-06	0.00	2.54E+10	-17.1081	342144.	0.00
22.0000	2.07E-04	946.7769	240.3489	-6.72E-06	0.00	2.54E+10	-15.0522	348480.	0.00
22.4000	1.76E-04	1927.	173.0872	-6.45E-06	0.00	2.54E+10	-12.9735	354816.	0.00
22.8000	1.45E-04	2608.	115.6897	-6.02E-06	0.00	2.54E+10	-10.9422	361152.	0.00
23.2000	1.18E-04	3038.	67.7983	-5.49E-06	0.00	2.54E+10	-9.0126	367488.	0.00
23.6000	9.28E-05	3259.	28.8297	-4.89E-06	0.00	2.54E+10	-7.2243	373824.	0.00
24.0000	7.08E-05	3314.	-1.9589	-4.27E-06	0.00	2.54E+10	-5.6043	380160.	0.00
24.4000	5.18E-05	3240.	-25.4126	-3.65E-06	0.00	2.54E+10	-4.1681	386496.	0.00
24.8000	3.57E-05	3070.	-42.4295	-3.06E-06	0.00	2.54E+10	-2.9223	392832.	0.00
25.2000	2.24E-05	2833.	-53.9205	-2.50E-06	0.00	2.54E+10	-1.8656	399168.	0.00
25.6000	1.17E-05	2553.	-60.7762	-1.99E-06	0.00	2.54E+10	-0.9909	405504.	0.00
26.0000	3.34E-06	2250.	-63.8422	-1.54E-06	0.00	2.54E+10	-0.2866	411840.	0.00
26.4000	-3.01E-06	1940.	-63.9009	-1.14E-06	0.00	2.54E+10	0.2622	418176.	0.00
26.8000	-7.60E-06	1636.	-61.6586	-8.02E-07	0.00	2.54E+10	0.6721	424512.	0.00
27.2000	-1.07E-05	1348.	-57.7391	-5.20E-07	0.00	2.54E+10	0.9610	430848.	0.00
27.6000	-1.26E-05	1082.	-52.6804	-2.90E-07	0.00	2.54E+10	1.1468	437184.	0.00
28.0000	-1.35E-05	842.2987	-46.9357	-1.09E-07	0.00	2.54E+10	1.2468	443520.	0.00
28.4000	-1.36E-05	631.3709	-40.8767	3.06E-08	0.00	2.54E+10	1.2777	449856.	0.00
28.8000	-1.32E-05	449.8821	-34.7992	1.33E-07	0.00	2.54E+10	1.2546	456192.	0.00
29.2000	-1.24E-05	297.2987	-28.9299	2.03E-07	0.00	2.54E+10	1.1910	462528.	0.00
29.6000	-1.12E-05	172.1551	-23.4345	2.48E-07	0.00	2.54E+10	1.0988	468864.	0.00
30.0000	-9.98E-06	72.3279	-18.4255	2.71E-07	0.00	2.54E+10	0.9883	475200.	0.00
30.4000	-8.65E-06	-4.7299	-13.9710	2.77E-07	0.00	2.54E+10	0.8678	481536.	0.00

30.8000	-7.32E-06	-61.7941	-10.1022	2.71E-07	0.00	2.54E+10	0.7442	487872.	0.00
31.2000	-6.05E-06	-101.7113	-6.8210	2.55E-07	0.00	2.54E+10	0.6229	494208.	0.00
31.6000	-4.87E-06	-127.2761	-4.1070	2.34E-07	0.00	2.54E+10	0.5079	500544.	0.00
32.0000	-3.81E-06	-141.1388	-1.9234	2.08E-07	0.00	2.54E+10	0.4019	506880.	0.00
32.4000	-2.87E-06	-145.7407	-0.2223	1.81E-07	0.00	2.54E+10	0.3069	513216.	0.00
32.8000	-2.07E-06	-143.2725	1.0509	1.54E-07	0.00	2.54E+10	0.2236	519552.	0.00
33.2000	-1.39E-06	-135.6523	1.9535	1.28E-07	0.00	2.54E+10	0.1525	525888.	0.00
33.6000	-8.40E-07	-124.5192	2.5430	1.03E-07	0.00	2.54E+10	0.09319	532224.	0.00
34.0000	-4.02E-07	-111.2391	2.8750	8.08E-08	0.00	2.54E+10	0.04512	538560.	0.00
34.4000	-6.47E-08	-96.9193	3.0009	6.11E-08	0.00	2.54E+10	0.00734	544896.	0.00
34.8000	1.85E-07	-82.4304	2.9676	4.42E-08	0.00	2.54E+10	-0.02123	551232.	0.00
35.2000	3.60E-07	-68.4306	2.8164	3.00E-08	0.00	2.54E+10	-0.04178	557568.	0.00
35.6000	4.72E-07	-55.3933	2.5829	1.83E-08	0.00	2.54E+10	-0.05550	563904.	0.00
36.0000	5.35E-07	-43.6348	2.2972	8.90E-09	0.00	2.54E+10	-0.06355	570240.	0.00
36.4000	5.58E-07	-33.3404	1.9838	1.63E-09	0.00	2.54E+10	-0.06702	576576.	0.00
36.8000	5.51E-07	-24.5901	1.6625	-3.84E-09	0.00	2.54E+10	-0.06687	582912.	0.00
37.2000	5.21E-07	-17.3805	1.3485	-7.80E-09	0.00	2.54E+10	-0.06397	589248.	0.00
37.6000	4.76E-07	-11.6446	1.0533	-1.05E-08	0.00	2.54E+10	-0.05903	595584.	0.00
38.0000	4.20E-07	-7.2687	0.7853	-1.23E-08	0.00	2.54E+10	-0.05265	601920.	0.00
38.4000	3.57E-07	-4.1059	0.5502	-1.34E-08	0.00	2.54E+10	-0.04528	608256.	0.00
38.8000	2.91E-07	-1.9864	0.3521	-1.40E-08	0.00	2.54E+10	-0.03728	614592.	0.00
39.2000	2.23E-07	-0.7258	0.1933	-1.42E-08	0.00	2.54E+10	-0.02887	620928.	0.00
39.6000	1.54E-07	-0.1303	0.07561	-1.43E-08	0.00	2.54E+10	-0.02019	627264.	0.00
40.0000	8.57E-08	0.00	0.00	-1.43E-08	0.00	2.54E+10	-0.01131	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 12:

```
Pile-head deflection              =     1.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -1068240. inch-lbs
Maximum shear force               =         39303. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             58
Number of zero deflection points  =              4
```

Computed Values of Pile Loading and Deflection

for Lateral Loading for Load Case Number 13

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.250000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	-1068239.	40151.	0.00	0.00	4.22E+08	0.00	0.00	0.00
0.4000	1.2209	-876097.	39909.	-0.01105	0.00	4.22E+08	-50.3785	198.0709	0.00
0.8000	1.1439	-685115.	39527.	-0.01647	0.00	3.75E+09	-108.6111	455.7410	0.00
1.2000	1.0628	-496636.	38857.	-0.01722	0.00	3.79E+09	-170.5423	770.2482	0.00
1.6000	0.9786	-312086.	37889.	-0.01772	0.00	3.97E+09	-233.0297	1143.	0.00
2.0000	0.8926	-132905.	36625.	-0.01792	0.00	2.53E+10	-293.6355	1579.	0.00
2.4000	0.8065	39510.	35077.	-0.01793	0.00	2.54E+10	-351.2146	2090.	0.00
2.8000	0.7205	203834.	33257.	-0.01791	0.00	2.52E+10	-407.1275	2712.	0.00
3.2000	0.6346	358777.	31149.	-0.01766	0.00	3.81E+09	-471.2407	3564.	0.00
3.6000	0.5509	502863.	28661.	-0.01712	0.00	3.79E+09	-565.2074	4925.	0.00
4.0000	0.4702	633927.	25646.	-0.01640	0.00	3.76E+09	-691.1295	7055.	0.00
4.4000	0.3935	749067.	21955.	-0.01551	0.00	3.74E+09	-846.7787	10330.	0.00
4.8000	0.3213	844697.	17432.	-0.01443	0.00	3.41E+09	-1038.	15502.	0.00
5.2000	0.2549	916417.	12210.	-0.01308	0.00	2.91E+09	-1138.	21433.	0.00
5.6000	0.1957	961912.	6680.	-0.01147	0.00	2.68E+09	-1166.	28594.	0.00
6.0000	0.1448	980542.	1094.	-0.00970	0.00	2.60E+09	-1161.	38486.	0.00
6.4000	0.1026	972418.	-4433.	-0.00791	0.00	2.63E+09	-1142.	53410.	0.00
6.8000	0.06891	937986.	-9804.	-0.00622	0.00	2.79E+09	-1096.	76339.	0.00
7.2000	0.04294	878303.	-14880.	-0.00474	0.00	3.15E+09	-1019.	113930.	0.00
7.6000	0.02340	795135.	-18735.	-0.00356	0.00	3.71E+09	-586.9171	120384.	0.00
8.0000	0.00879	698445.	-20701.	-0.00260	0.00	3.75E+09	-232.1860	126720.	0.00
8.4000	-0.00152	596405.	-21157.	-0.00177	0.00	3.77E+09	42.0694	133056.	0.00
8.8000	-0.00818	495334.	-20486.	-0.00107	0.00	3.79E+09	237.6437	139392.	0.00
9.2000	-0.01184	399739.	-19053.	-5.09E-04	0.00	3.80E+09	359.3290	145728.	0.00
9.6000	-0.01307	312423.	-17197.	-7.49E-05	0.00	4.13E+09	413.9715	152064.	0.00
10.0000	-0.01255	234644.	-15210.	1.29E-04	0.00	2.51E+10	414.3023	158400.	0.00
10.4000	-0.01183	166411.	-13241.	1.67E-04	0.00	2.52E+10	405.8943	164736.	0.00
10.8000	-0.01095	107530.	-11331.	1.94E-04	0.00	2.53E+10	390.1463	171072.	0.00
11.2000	-0.00997	57638.	-9510.	2.09E-04	0.00	2.54E+10	368.4561	177408.	0.00
11.6000	-0.00894	16235.	-7804.	2.16E-04	0.00	2.54E+10	342.1807	183744.	0.00
12.0000	-0.00789	-17284.	-6233.	2.16E-04	0.00	2.54E+10	312.6027	190080.	0.00
12.4000	-0.00686	-43601.	-4808.	2.10E-04	0.00	2.54E+10	280.9075	196416.	0.00
12.8000	-0.00588	-63445.	-3539.	2.00E-04	0.00	2.54E+10	248.1668	202752.	0.00
13.2000	-0.00494	-77572.	-2426.	1.87E-04	0.00	2.53E+10	215.3238	209088.	0.00
13.6000	-0.00408	-86738.	-1470.	1.71E-04	0.00	2.53E+10	183.1856	215424.	0.00
14.0000	-0.00330	-91683.	-664.4430	1.54E-04	0.00	2.53E+10	152.4183	221760.	0.00

14.4000	-0.00260	-93116.	-2.1217	1.37E-04	0.00	2.53E+10	123.5489	228096.	0.00
14.8000	-0.00199	-91703.	527.1271	1.19E-04	0.00	2.53E+10	96.9715	234432.	0.00
15.2000	-0.00145	-88056.	934.9552	1.02E-04	0.00	2.53E+10	72.9569	240768.	0.00
15.6000	-0.00100	-82728.	1234.	8.61E-05	0.00	2.53E+10	51.6642	247104.	0.00
16.0000	-6.28E-04	-76209.	1438.	7.10E-05	0.00	2.53E+10	33.1536	253440.	0.00
16.4000	-3.22E-04	-68927.	1559.	5.73E-05	0.00	2.54E+10	17.4009	259776.	0.00
16.8000	-7.78E-05	-61243.	1611.	4.50E-05	0.00	2.54E+10	4.3119	266112.	0.00
17.2000	1.10E-04	-53461.	1606.	3.41E-05	0.00	2.54E+10	-6.2632	272448.	0.00
17.6000	2.50E-04	-45822.	1556.	2.47E-05	0.00	2.54E+10	-14.5155	278784.	0.00
18.0000	3.48E-04	-38518.	1472.	1.68E-05	0.00	2.54E+10	-20.6655	285120.	0.00
18.4000	4.11E-04	-31690.	1363.	1.01E-05	0.00	2.54E+10	-24.9521	291456.	0.00
18.8000	4.45E-04	-25437.	1236.	4.74E-06	0.00	2.54E+10	-27.6224	297792.	0.00
19.2000	4.56E-04	-19821.	1101.	4.68E-07	0.00	2.54E+10	-28.9217	304128.	0.00
19.6000	4.50E-04	-14871.	961.4740	-2.81E-06	0.00	2.54E+10	-29.0881	310464.	0.00
20.0000	4.29E-04	-10591.	823.6300	-5.21E-06	0.00	2.54E+10	-28.3468	316800.	0.00
20.4000	4.00E-04	-6964.	691.0240	-6.87E-06	0.00	2.54E+10	-26.9056	323136.	0.00
20.8000	3.64E-04	-3957.	566.5650	-7.90E-06	0.00	2.54E+10	-24.9523	329472.	0.00
21.2000	3.24E-04	-1525.	452.3139	-8.42E-06	0.00	2.54E+10	-22.6524	335808.	0.00
21.6000	2.83E-04	385.2211	349.5902	-8.53E-06	0.00	2.54E+10	-20.1491	342144.	0.00
22.0000	2.42E-04	1831.	259.0820	-8.32E-06	0.00	2.54E+10	-17.5626	348480.	0.00
22.4000	2.03E-04	2872.	180.9526	-7.88E-06	0.00	2.54E+10	-14.9913	354816.	0.00
22.8000	1.66E-04	3568.	114.9433	-7.27E-06	0.00	2.54E+10	-12.5126	361152.	0.00
23.2000	1.33E-04	3976.	60.4681	-6.55E-06	0.00	2.54E+10	-10.1854	367488.	0.00
23.6000	1.03E-04	4149.	16.7007	-5.79E-06	0.00	2.54E+10	-8.0510	373824.	0.00
24.0000	7.75E-05	4136.	-17.3490	-5.00E-06	0.00	2.54E+10	-6.1364	380160.	0.00
24.4000	5.53E-05	3982.	-42.7690	-4.24E-06	0.00	2.54E+10	-4.4553	386496.	0.00
24.8000	3.68E-05	3726.	-60.6889	-3.51E-06	0.00	2.54E+10	-3.0113	392832.	0.00
25.2000	2.16E-05	3400.	-72.2344	-2.84E-06	0.00	2.54E+10	-1.7993	399168.	0.00
25.6000	9.56E-06	3032.	-78.4914	-2.23E-06	0.00	2.54E+10	-0.8077	405504.	0.00
26.0000	2.35E-07	2646.	-80.4783	-1.69E-06	0.00	2.54E+10	-0.02016	411840.	0.00
26.4000	-6.69E-06	2260.	-79.1275	-1.23E-06	0.00	2.54E+10	0.5830	418176.	0.00
26.8000	-1.16E-05	1886.	-75.2726	-8.38E-07	0.00	2.54E+10	1.0232	424512.	0.00
27.2000	-1.47E-05	1537.	-69.6423	-5.15E-07	0.00	2.54E+10	1.3228	430848.	0.00
27.6000	-1.65E-05	1218.	-62.8585	-2.54E-07	0.00	2.54E+10	1.5038	437184.	0.00
28.0000	-1.72E-05	933.5062	-55.4397	-5.12E-08	0.00	2.54E+10	1.5874	443520.	0.00
28.4000	-1.70E-05	685.6823	-47.8057	1.02E-07	0.00	2.54E+10	1.5935	449856.	0.00
28.8000	-1.62E-05	474.5717	-40.2854	2.11E-07	0.00	2.54E+10	1.5400	456192.	0.00
29.2000	-1.50E-05	298.9421	-33.1266	2.84E-07	0.00	2.54E+10	1.4429	462528.	0.00
29.6000	-1.35E-05	156.5567	-26.5050	3.27E-07	0.00	2.54E+10	1.3161	468864.	0.00
30.0000	-1.18E-05	44.4944	-20.5352	3.46E-07	0.00	2.54E+10	1.1713	475200.	0.00
30.4000	-1.01E-05	-40.5815	-15.2807	3.47E-07	0.00	2.54E+10	1.0181	481536.	0.00
30.8000	-8.50E-06	-102.2004	-10.7632	3.33E-07	0.00	2.54E+10	0.8642	487872.	0.00
31.2000	-6.95E-06	-143.9081	-6.9719	3.10E-07	0.00	2.54E+10	0.7155	494208.	0.00
31.6000	-5.53E-06	-169.1306	-3.8716	2.80E-07	0.00	2.54E+10	0.5763	500544.	0.00
32.0000	-4.26E-06	-181.0751	-1.4095	2.47E-07	0.00	2.54E+10	0.4496	506880.	0.00
32.4000	-3.15E-06	-182.6618	0.4782	2.13E-07	0.00	2.54E+10	0.3370	513216.	0.00
32.8000	-2.21E-06	-176.4839	1.8618	1.79E-07	0.00	2.54E+10	0.2395	519552.	0.00
33.2000	-1.43E-06	-164.7888	2.8132	1.47E-07	0.00	2.54E+10	0.1570	525888.	0.00

33.6000	-8.03E-07	-149.4768	3.4036	1.17E-07	0.00	2.54E+10	0.08900	532224.	0.00
34.0000	-3.08E-07	-132.1142	3.7002	9.06E-08	0.00	2.54E+10	0.03457	538560.	0.00
34.4000	6.67E-08	-113.9550	3.7650	6.73E-08	0.00	2.54E+10	-0.00757	544896.	0.00
34.8000	3.38E-07	-95.9702	3.6537	4.75E-08	0.00	2.54E+10	-0.03883	551232.	0.00
35.2000	5.23E-07	-78.8799	3.4148	3.10E-08	0.00	2.54E+10	-0.06070	557568.	0.00
35.6000	6.35E-07	-63.1881	3.0900	1.76E-08	0.00	2.54E+10	-0.07465	563904.	0.00
36.0000	6.91E-07	-49.2163	2.7138	6.93E-09	0.00	2.54E+10	-0.08209	570240.	0.00
36.4000	7.02E-07	-37.1358	2.3144	-1.22E-09	0.00	2.54E+10	-0.08432	576576.	0.00
36.8000	6.79E-07	-26.9981	1.9140	-7.28E-09	0.00	2.54E+10	-0.08249	582912.	0.00
37.2000	6.32E-07	-18.7611	1.5298	-1.16E-08	0.00	2.54E+10	-0.07760	589248.	0.00
37.6000	5.68E-07	-12.3120	1.1745	-1.45E-08	0.00	2.54E+10	-0.07047	595584.	0.00
38.0000	4.93E-07	-7.4864	0.8571	-1.64E-08	0.00	2.54E+10	-0.06177	601920.	0.00
38.4000	4.10E-07	-4.0838	0.5840	-1.75E-08	0.00	2.54E+10	-0.05201	608256.	0.00
38.8000	3.25E-07	-1.8796	0.3595	-1.81E-08	0.00	2.54E+10	-0.04156	614592.	0.00
39.2000	2.37E-07	-0.6327	0.1862	-1.83E-08	0.00	2.54E+10	-0.03066	620928.	0.00
39.6000	1.49E-07	-0.09224	0.06591	-1.84E-08	0.00	2.54E+10	-0.01945	627264.	0.00
40.0000	6.07E-08	0.00	0.00	-1.84E-08	0.00	2.54E+10	-0.00801	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 13:

```
Pile-head deflection               =     1.25000000 inches
Computed slope at pile head        =       0.000000 radians
Maximum bending moment             =      -1068239. inch-lbs
Maximum shear force                =         40151. lbs
Depth of maximum bending moment    =       0.000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             44
Number of zero deflection points   =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 14

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.500000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	-1068215.	40563.	0.00	0.00	3.44E+08	0.00	0.00	0.00
0.4000	1.4642	-874094.	40321.	-0.01355	0.00	3.44E+08	-50.3785	165.1497	0.00
0.8000	1.3699	-681134.	39939.	-0.02008	0.00	3.75E+09	-108.6113	380.5588	0.00
1.2000	1.2714	-490676.	39269.	-0.02083	0.00	3.79E+09	-170.5431	643.8511	0.00
1.6000	1.1699	-304148.	38301.	-0.02117	0.00	2.50E+10	-233.0315	956.0729	0.00
2.0000	1.0682	-122988.	37037.	-0.02121	0.00	2.53E+10	-293.6376	1319.	0.00
2.4000	0.9663	51406.	35489.	-0.02122	0.00	2.54E+10	-351.2171	1745.	0.00
2.8000	0.8645	217708.	33669.	-0.02119	0.00	2.51E+10	-407.1304	2261.	0.00
3.2000	0.7629	374630.	31594.	-0.02094	0.00	3.81E+09	-457.5759	2879.	0.00
3.6000	0.6635	521009.	29278.	-0.02037	0.00	3.78E+09	-507.3505	3670.	0.00
4.0000	0.5673	655699.	26566.	-0.01962	0.00	3.76E+09	-622.6213	5268.	0.00
4.4000	0.4752	776044.	23217.	-0.01870	0.00	3.73E+09	-772.6516	7805.	0.00
4.8000	0.3878	878586.	19047.	-0.01753	0.00	3.15E+09	-964.9571	11944.	0.00
5.2000	0.3068	958897.	13873.	-0.01601	0.00	2.69E+09	-1191.	18631.	0.00
5.6000	0.2341	1011766.	8041.	-0.01416	0.00	2.45E+09	-1239.	25404.	0.00
6.0000	0.1709	1036089.	2111.	-0.01189	0.00	1.94E+09	-1232.	34599.	0.00
6.4000	0.1200	1032034.	-3741.	-0.00940	0.00	2.05E+09	-1207.	48296.	0.00
6.8000	0.08064	1000174.	-9419.	-0.00724	0.00	2.52E+09	-1159.	68979.	0.00
7.2000	0.05048	941614.	-14791.	-0.00547	0.00	2.78E+09	-1079.	102647.	0.00
7.6000	0.02813	858183.	-19075.	-0.00403	0.00	3.30E+09	-705.5930	120384.	0.00
8.0000	0.01179	758495.	-21515.	-0.00292	0.00	3.73E+09	-311.1994	126720.	0.00
8.4000	1.21E-04	651638.	-22270.	-0.00201	0.00	3.76E+09	-3.3613	133056.	0.00
8.8000	-0.00755	544702.	-21752.	-0.00125	0.00	3.78E+09	219.2214	139392.	0.00
9.2000	-0.01190	442818.	-20359.	-6.26E-04	0.00	3.80E+09	361.2001	145728.	0.00
9.6000	-0.01356	349256.	-18461.	-1.26E-04	0.00	3.81E+09	429.5343	152064.	0.00
10.0000	-0.01311	265590.	-16392.	1.19E-04	0.00	2.51E+10	432.6267	158400.	0.00
10.4000	-0.01242	191892.	-14331.	1.63E-04	0.00	2.52E+10	426.1607	164736.	0.00
10.8000	-0.01155	128013.	-12320.	1.93E-04	0.00	2.53E+10	411.6094	171072.	0.00
11.2000	-0.01056	73617.	-10395.	2.12E-04	0.00	2.53E+10	390.4529	177408.	0.00
11.6000	-0.00951	28217.	-8584.	2.22E-04	0.00	2.54E+10	364.1348	183744.	0.00
12.0000	-0.00844	-8793.	-6909.	2.24E-04	0.00	2.54E+10	334.0266	190080.	0.00
12.4000	-0.00737	-38107.	-5384.	2.19E-04	0.00	2.54E+10	301.4004	196416.	0.00
12.8000	-0.00633	-60477.	-4019.	2.10E-04	0.00	2.54E+10	267.4114	202752.	0.00
13.2000	-0.00535	-76686.	-2817.	1.97E-04	0.00	2.53E+10	233.0831	209088.	0.00
13.6000	-0.00444	-87524.	-1780.	1.81E-04	0.00	2.53E+10	199.2969	215424.	0.00
14.0000	-0.00361	-93771.	-901.1060	1.64E-04	0.00	2.53E+10	166.7861	221760.	0.00
14.4000	-0.00286	-96175.	-174.0906	1.46E-04	0.00	2.53E+10	136.1370	228096.	0.00
14.8000	-0.00221	-95442.	411.3460	1.28E-04	0.00	2.53E+10	107.7949	234432.	0.00
15.2000	-0.00164	-92226.	867.0281	1.10E-04	0.00	2.53E+10	82.0727	240768.	0.00
15.6000	-0.00115	-87119.	1206.	9.32E-05	0.00	2.53E+10	59.1630	247104.	0.00
16.0000	-7.42E-04	-80648.	1442.	7.73E-05	0.00	2.53E+10	39.1519	253440.	0.00
16.4000	-4.07E-04	-73276.	1589.	6.27E-05	0.00	2.53E+10	22.0335	259776.	0.00
16.8000	-1.39E-04	-65396.	1660.	4.96E-05	0.00	2.54E+10	7.7249	266112.	0.00

17.2000	6.90E-05	-57338.	1669.	3.80E-05	0.00	2.54E+10	-3.9184	272448.	0.00
17.6000	2.25E-04	-49370.	1629.	2.79E-05	0.00	2.54E+10	-13.0874	278784.	0.00
18.0000	3.37E-04	-41704.	1549.	1.93E-05	0.00	2.54E+10	-20.0065	285120.	0.00
18.4000	4.10E-04	-34499.	1441.	1.21E-05	0.00	2.54E+10	-24.9219	291456.	0.00
18.8000	4.53E-04	-27868.	1314.	6.19E-06	0.00	2.54E+10	-28.0903	297792.	0.00
19.2000	4.70E-04	-21884.	1175.	1.49E-06	0.00	2.54E+10	-29.7694	304128.	0.00
19.6000	4.67E-04	-16586.	1031.	-2.14E-06	0.00	2.54E+10	-30.2101	310464.	0.00
20.0000	4.49E-04	-11984.	887.5731	-4.84E-06	0.00	2.54E+10	-29.6508	316800.	0.00
20.4000	4.21E-04	-8065.	748.4599	-6.74E-06	0.00	2.54E+10	-28.3130	323136.	0.00
20.8000	3.85E-04	-4799.	617.1547	-7.95E-06	0.00	2.54E+10	-26.3975	329472.	0.00
21.2000	3.44E-04	-2140.	496.0027	-8.61E-06	0.00	2.54E+10	-24.0825	335808.	0.00
21.6000	3.02E-04	-37.0539	386.5503	-8.81E-06	0.00	2.54E+10	-21.5227	342144.	0.00
22.0000	2.60E-04	1570.	289.6588	-8.67E-06	0.00	2.54E+10	-18.8488	348480.	0.00
22.4000	2.19E-04	2744.	205.6176	-8.26E-06	0.00	2.54E+10	-16.1684	354816.	0.00
22.8000	1.80E-04	3544.	134.2520	-7.67E-06	0.00	2.54E+10	-13.5673	361152.	0.00
23.2000	1.45E-04	4032.	75.0247	-6.95E-06	0.00	2.54E+10	-11.1108	367488.	0.00
23.6000	1.14E-04	4265.	27.1282	-6.17E-06	0.00	2.54E+10	-8.8461	373824.	0.00
24.0000	8.59E-05	4293.	-10.4334	-5.36E-06	0.00	2.54E+10	-6.8045	380160.	0.00
24.4000	6.21E-05	4164.	-38.7721	-4.56E-06	0.00	2.54E+10	-5.0033	386496.	0.00
24.8000	4.21E-05	3921.	-59.0560	-3.80E-06	0.00	2.54E+10	-3.4483	392832.	0.00
25.2000	2.57E-05	3598.	-72.4588	-3.09E-06	0.00	2.54E+10	-2.1362	399168.	0.00
25.6000	1.25E-05	3225.	-80.1207	-2.44E-06	0.00	2.54E+10	-1.0562	405504.	0.00
26.0000	2.24E-06	2828.	-83.1175	-1.87E-06	0.00	2.54E+10	-0.1924	411840.	0.00
26.4000	-5.45E-06	2427.	-82.4390	-1.37E-06	0.00	2.54E+10	0.4751	418176.	0.00
26.8000	-1.09E-05	2037.	-78.9750	-9.52E-07	0.00	2.54E+10	0.9683	424512.	0.00
27.2000	-1.46E-05	1669.	-73.5068	-6.02E-07	0.00	2.54E+10	1.3101	430848.	0.00
27.6000	-1.67E-05	1331.	-66.7053	-3.19E-07	0.00	2.54E+10	1.5238	437184.	0.00
28.0000	-1.77E-05	1029.	-59.1323	-9.60E-08	0.00	2.54E+10	1.6316	443520.	0.00
28.4000	-1.77E-05	763.6055	-51.2460	7.33E-08	0.00	2.54E+10	1.6544	449856.	0.00
28.8000	-1.70E-05	536.6833	-43.4082	1.96E-07	0.00	2.54E+10	1.6114	456192.	0.00
29.2000	-1.58E-05	346.8869	-35.8939	2.80E-07	0.00	2.54E+10	1.5196	462528.	0.00
29.6000	-1.43E-05	192.1019	-28.9013	3.30E-07	0.00	2.54E+10	1.3940	468864.	0.00
30.0000	-1.26E-05	69.4342	-22.5626	3.55E-07	0.00	2.54E+10	1.2472	475200.	0.00
30.4000	-1.09E-05	-24.4987	-16.9543	3.59E-07	0.00	2.54E+10	1.0896	481536.	0.00
30.8000	-9.15E-06	-93.3269	-12.1078	3.48E-07	0.00	2.54E+10	0.9297	487872.	0.00
31.2000	-7.52E-06	-140.7338	-8.0187	3.26E-07	0.00	2.54E+10	0.7741	494208.	0.00
31.6000	-6.02E-06	-170.3066	-4.6553	2.97E-07	0.00	2.54E+10	0.6274	500544.	0.00
32.0000	-4.67E-06	-185.4247	-1.9663	2.63E-07	0.00	2.54E+10	0.4930	506880.	0.00
32.4000	-3.49E-06	-189.1832	0.1124	2.28E-07	0.00	2.54E+10	0.3731	513216.	0.00
32.8000	-2.48E-06	-184.3452	1.6527	1.93E-07	0.00	2.54E+10	0.2687	519552.	0.00
33.2000	-1.64E-06	-173.3175	2.7291	1.59E-07	0.00	2.54E+10	0.1798	525888.	0.00
33.6000	-9.58E-07	-158.1461	3.4157	1.27E-07	0.00	2.54E+10	0.1062	532224.	0.00
34.0000	-4.18E-07	-140.5269	3.7833	9.92E-08	0.00	2.54E+10	0.04693	538560.	0.00
34.4000	-5.71E-09	-121.8266	3.8975	7.44E-08	0.00	2.54E+10	6.48E-04	544896.	0.00
34.8000	2.96E-07	-103.1113	3.8173	5.32E-08	0.00	2.54E+10	-0.03403	551232.	0.00
35.2000	5.05E-07	-85.1801	3.5949	3.54E-08	0.00	2.54E+10	-0.05865	557568.	0.00
35.6000	6.36E-07	-68.6001	3.2748	2.09E-08	0.00	2.54E+10	-0.07474	563904.	0.00
36.0000	7.05E-07	-53.7421	2.8943	9.32E-09	0.00	2.54E+10	-0.08379	570240.	0.00

36.4000	7.26E-07	-40.8146	2.4840	3.89E-10	0.00	2.54E+10	-0.08717	576576.	0.00
36.8000	7.09E-07	-29.8954	2.0682	-6.29E-09	0.00	2.54E+10	-0.08610	582912.	0.00
37.2000	6.65E-07	-20.9600	1.6655	-1.11E-08	0.00	2.54E+10	-0.08167	589248.	0.00
37.6000	6.03E-07	-13.9063	1.2901	-1.44E-08	0.00	2.54E+10	-0.07476	595584.	0.00
38.0000	5.27E-07	-8.5751	0.9520	-1.65E-08	0.00	2.54E+10	-0.06611	601920.	0.00
38.4000	4.44E-07	-4.7670	0.6583	-1.78E-08	0.00	2.54E+10	-0.05627	608256.	0.00
38.8000	3.57E-07	-2.2553	0.4137	-1.84E-08	0.00	2.54E+10	-0.04565	614592.	0.00
39.2000	2.67E-07	-0.7954	0.2212	-1.87E-08	0.00	2.54E+10	-0.03455	620928.	0.00
39.6000	1.77E-07	-0.1315	0.08286	-1.88E-08	0.00	2.54E+10	-0.02311	627264.	0.00
40.0000	8.65E-08	0.00	0.00	-1.88E-08	0.00	2.54E+10	-0.01142	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 14:

```
Pile-head deflection              =     1.50000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -1068215. inch-lbs
Maximum shear force               =         40563. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             83
Number of zero deflection points  =              5
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 15

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)

```
Displacement of pile head                        =     1.750000 inches
Rotation of pile head                            =    0.000E+00 radians
Axial load on pile head                          =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	-1068209.	40525.	0.00	0.00	2.94E+08	0.00	0.00	0.00
0.4000	1.7081	-874268.	40284.	-0.01586	0.00	2.94E+08	-50.3786	141.5677	0.00

0.8000	1.5977	-681487.	39902.	-0.02343	0.00	3.75E+09	-108.6114	326.2932	0.00
1.2000	1.4832	-491209.	39232.	-0.02418	0.00	3.79E+09	-170.5432	551.9294	0.00
1.6000	1.3656	-304860.	38263.	-0.02452	0.00	2.50E+10	-233.0317	819.0847	0.00
2.0000	1.2478	-123880.	36999.	-0.02456	0.00	2.53E+10	-293.6379	1130.	0.00
2.4000	1.1298	50335.	35452.	-0.02457	0.00	2.54E+10	-351.2175	1492.	0.00
2.8000	1.0119	216457.	33632.	-0.02454	0.00	2.51E+10	-407.1308	1931.	0.00
3.2000	0.8942	373199.	31556.	-0.02429	0.00	3.81E+09	-457.5764	2456.	0.00
3.6000	0.7787	519399.	29255.	-0.02372	0.00	3.78E+09	-501.4457	3091.	0.00
4.0000	0.6664	654045.	26725.	-0.02298	0.00	3.76E+09	-552.6534	3980.	0.00
4.4000	0.5582	775958.	23725.	-0.02206	0.00	3.73E+09	-697.2951	5996.	0.00
4.8000	0.4547	881806.	19912.	-0.02088	0.00	3.12E+09	-891.6321	9413.	0.00
5.2000	0.3577	967110.	15071.	-0.01933	0.00	2.66E+09	-1125.	15099.	0.00
5.6000	0.2691	1026491.	9253.	-0.01734	0.00	2.21E+09	-1299.	23170.	0.00
6.0000	0.1912	1055944.	3059.	-0.01443	0.00	1.40E+09	-1282.	32182.	0.00
6.4000	0.1306	1055862.	-3002.	-0.01082	0.00	1.40E+09	-1244.	45714.	0.00
6.8000	0.08737	1027120.	-8849.	-0.00788	0.00	2.19E+09	-1192.	65499.	0.00
7.2000	0.05494	970908.	-14381.	-0.00587	0.00	2.64E+09	-1112.	97183.	0.00
7.6000	0.03099	889067.	-18916.	-0.00430	0.00	3.08E+09	-777.2335	120384.	0.00
8.0000	0.01370	789318.	-21649.	-0.00309	0.00	3.72E+09	-361.5883	126720.	0.00
8.4000	0.00129	681238.	-22603.	-0.00215	0.00	3.75E+09	-35.8509	133056.	0.00
8.8000	-0.00693	572332.	-22206.	-0.00135	0.00	3.77E+09	201.1110	139392.	0.00
9.2000	-0.01165	468059.	-20875.	-6.88E-04	0.00	3.79E+09	353.6485	145728.	0.00
9.6000	-0.01353	371935.	-18997.	-1.57E-04	0.00	3.81E+09	428.5688	152064.	0.00
10.0000	-0.01316	285685.	-16927.	1.04E-04	0.00	2.51E+10	434.2240	158400.	0.00
10.4000	-0.01253	209439.	-14853.	1.52E-04	0.00	2.52E+10	429.8855	164736.	0.00
10.8000	-0.01170	143098.	-12820.	1.85E-04	0.00	2.53E+10	417.0413	171072.	0.00
11.2000	-0.01075	86365.	-10866.	2.07E-04	0.00	2.53E+10	397.1951	177408.	0.00
11.6000	-0.00971	38784.	-9020.	2.19E-04	0.00	2.54E+10	371.8208	183744.	0.00
12.0000	-0.00864	-229.9080	-7306.	2.23E-04	0.00	2.54E+10	342.3247	190080.	0.00
12.4000	-0.00758	-31357.	-5741.	2.20E-04	0.00	2.54E+10	310.0160	196416.	0.00
12.8000	-0.00654	-55341.	-4334.	2.11E-04	0.00	2.54E+10	276.0877	202752.	0.00
13.2000	-0.00555	-72965.	-3092.	1.99E-04	0.00	2.53E+10	241.6030	209088.	0.00
13.6000	-0.00462	-85022.	-2014.	1.84E-04	0.00	2.53E+10	207.4820	215424.	0.00
14.0000	-0.00378	-92298.	-1097.	1.68E-04	0.00	2.53E+10	174.4959	221760.	0.00
14.4000	-0.00301	-95554.	-334.4977	1.50E-04	0.00	2.53E+10	143.2667	228096.	0.00
14.8000	-0.00234	-95509.	283.5960	1.32E-04	0.00	2.53E+10	114.2723	234432.	0.00
15.2000	-0.00175	-92831.	768.7012	1.14E-04	0.00	2.53E+10	87.8548	240768.	0.00
15.6000	-0.00125	-88130.	1134.	9.66E-05	0.00	2.53E+10	64.2326	247104.	0.00
16.0000	-8.24E-04	-81948.	1392.	8.05E-05	0.00	2.53E+10	43.5133	253440.	0.00
16.4000	-4.75E-04	-74764.	1558.	6.56E-05	0.00	2.53E+10	25.7091	259776.	0.00
16.8000	-1.94E-04	-66987.	1646.	5.22E-05	0.00	2.54E+10	10.7512	266112.	0.00
17.2000	2.63E-05	-58963.	1668.	4.03E-05	0.00	2.54E+10	-1.4942	272448.	0.00
17.6000	1.93E-04	-50973.	1638.	2.99E-05	0.00	2.54E+10	-11.2107	278784.	0.00
18.0000	3.13E-04	-43241.	1566.	2.10E-05	0.00	2.54E+10	-18.6183	285120.	0.00
18.4000	3.95E-04	-35938.	1464.	1.35E-05	0.00	2.54E+10	-23.9607	291456.	0.00
18.8000	4.43E-04	-29188.	1340.	7.36E-06	0.00	2.54E+10	-27.4948	297792.	0.00
19.2000	4.65E-04	-23070.	1204.	2.43E-06	0.00	2.54E+10	-29.4803	304128.	0.00
19.6000	4.66E-04	-17633.	1060.	-1.42E-06	0.00	2.54E+10	-30.1710	310464.	0.00

20.0000	4.52E-04	-12890.	916.5356	-4.30E-06	0.00	2.54E+10	-29.8096	316800.	0.00
20.4000	4.25E-04	-8834.	776.2991	-6.35E-06	0.00	2.54E+10	-28.6223	323136.	0.00
20.8000	3.91E-04	-5437.	643.2493	-7.70E-06	0.00	2.54E+10	-26.8152	329472.	0.00
21.2000	3.51E-04	-2659.	519.9199	-8.47E-06	0.00	2.54E+10	-24.5720	335808.	0.00
21.6000	3.09E-04	-446.0833	408.0199	-8.76E-06	0.00	2.54E+10	-22.0530	342144.	0.00
22.0000	2.67E-04	1258.	308.5470	-8.68E-06	0.00	2.54E+10	-19.3941	348480.	0.00
22.4000	2.26E-04	2516.	221.9021	-8.33E-06	0.00	2.54E+10	-16.7080	354816.	0.00
22.8000	1.87E-04	3389.	147.9990	-7.77E-06	0.00	2.54E+10	-14.0850	361152.	0.00
23.2000	1.51E-04	3937.	86.3675	-7.08E-06	0.00	2.54E+10	-11.5948	367488.	0.00
23.6000	1.19E-04	4218.	36.2485	-6.31E-06	0.00	2.54E+10	-9.2882	373824.	0.00
24.0000	9.09E-05	4285.	-3.3219	-5.50E-06	0.00	2.54E+10	-7.1995	380160.	0.00
24.4000	6.64E-05	4186.	-33.4379	-4.70E-06	0.00	2.54E+10	-5.3488	386496.	0.00
24.8000	4.57E-05	3964.	-55.2609	-3.93E-06	0.00	2.54E+10	-3.7441	392832.	0.00
25.2000	2.87E-05	3655.	-69.9678	-3.21E-06	0.00	2.54E+10	-2.3838	399168.	0.00
25.6000	1.49E-05	3292.	-78.7088	-2.56E-06	0.00	2.54E+10	-1.2583	405504.	0.00
26.0000	4.11E-06	2900.	-82.5750	-1.97E-06	0.00	2.54E+10	-0.3526	411840.	0.00
26.4000	-4.05E-06	2499.	-82.5753	-1.46E-06	0.00	2.54E+10	0.3525	418176.	0.00
26.8000	-9.94E-06	2107.	-79.6206	-1.03E-06	0.00	2.54E+10	0.8787	424512.	0.00
27.2000	-1.39E-05	1735.	-74.5145	-6.65E-07	0.00	2.54E+10	1.2489	430848.	0.00
27.6000	-1.63E-05	1392.	-67.9500	-3.70E-07	0.00	2.54E+10	1.4863	437184.	0.00
28.0000	-1.75E-05	1083.	-60.5103	-1.36E-07	0.00	2.54E+10	1.6135	443520.	0.00
28.4000	-1.76E-05	810.7904	-52.6736	4.29E-08	0.00	2.54E+10	1.6517	449856.	0.00
28.8000	-1.71E-05	576.9849	-44.8203	1.74E-07	0.00	2.54E+10	1.6205	456192.	0.00
29.2000	-1.60E-05	380.5156	-37.2415	2.64E-07	0.00	2.54E+10	1.5373	462528.	0.00
29.6000	-1.45E-05	219.4663	-30.1498	3.21E-07	0.00	2.54E+10	1.4176	468864.	0.00
30.0000	-1.29E-05	91.0776	-23.6894	3.50E-07	0.00	2.54E+10	1.2743	475200.	0.00
30.4000	-1.11E-05	-7.9517	-17.9470	3.58E-07	0.00	2.54E+10	1.1184	481536.	0.00
30.8000	-9.43E-06	-81.2133	-12.9620	3.50E-07	0.00	2.54E+10	0.9587	487872.	0.00
31.2000	-7.79E-06	-132.3870	-8.7363	3.30E-07	0.00	2.54E+10	0.8020	494208.	0.00
31.6000	-6.27E-06	-165.0820	-5.2430	3.02E-07	0.00	2.54E+10	0.6535	500544.	0.00
32.0000	-4.89E-06	-182.7194	-2.4340	2.69E-07	0.00	2.54E+10	0.5169	506880.	0.00
32.4000	-3.69E-06	-188.4483	-0.2473	2.34E-07	0.00	2.54E+10	0.3943	513216.	0.00
32.8000	-2.65E-06	-185.0934	1.3877	1.98E-07	0.00	2.54E+10	0.2870	519552.	0.00
33.2000	-1.78E-06	-175.1266	2.5452	1.64E-07	0.00	2.54E+10	0.1953	525888.	0.00
33.6000	-1.07E-06	-160.6591	3.2997	1.33E-07	0.00	2.54E+10	0.1190	532224.	0.00
34.0000	-5.10E-07	-143.4493	3.7226	1.04E-07	0.00	2.54E+10	0.05718	538560.	0.00
34.4000	-7.58E-08	-124.9222	3.8805	7.86E-08	0.00	2.54E+10	0.00861	544896.	0.00
34.8000	2.45E-07	-106.1967	3.8337	5.67E-08	0.00	2.54E+10	-0.02810	551232.	0.00
35.2000	4.69E-07	-88.1185	3.6356	3.84E-08	0.00	2.54E+10	-0.05446	557568.	0.00
35.6000	6.13E-07	-71.2952	3.3320	2.33E-08	0.00	2.54E+10	-0.07203	563904.	0.00
36.0000	6.93E-07	-56.1315	2.9616	1.13E-08	0.00	2.54E+10	-0.08230	570240.	0.00
36.4000	7.22E-07	-42.8641	2.5560	1.94E-09	0.00	2.54E+10	-0.08667	576576.	0.00
36.8000	7.11E-07	-31.5935	2.1407	-5.09E-09	0.00	2.54E+10	-0.08639	582912.	0.00
37.2000	6.73E-07	-22.3135	1.7352	-1.02E-08	0.00	2.54E+10	-0.08257	589248.	0.00
37.6000	6.14E-07	-14.9360	1.3542	-1.37E-08	0.00	2.54E+10	-0.07614	595584.	0.00
38.0000	5.41E-07	-9.3127	1.0087	-1.60E-08	0.00	2.54E+10	-0.06785	601920.	0.00
38.4000	4.60E-07	-5.2528	0.7059	-1.74E-08	0.00	2.54E+10	-0.05830	608256.	0.00
38.8000	3.74E-07	-2.5362	0.4509	-1.81E-08	0.00	2.54E+10	-0.04793	614592.	0.00

39.2000	2.86E-07	-0.9238	0.2470	-1.84E-08	0.00	2.54E+10	-0.03703	620928.	0.00
39.6000	1.97E-07	-0.1648	0.09623	-1.85E-08	0.00	2.54E+10	-0.02579	627264.	0.00
40.0000	1.08E-07	0.00	0.00	-1.86E-08	0.00	2.54E+10	-0.01430	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 15:

```
Pile-head deflection              =     1.75000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =     -1068209. inch-lbs
Maximum shear force               =         40525. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             89
Number of zero deflection points =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 16

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     2.000000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	-1068209.	40449.	0.00	0.00	2.57E+08	0.00	0.00	0.00
0.4000	1.9520	-874635.	40207.	-0.01817	0.00	2.57E+08	-50.3786	123.8791	0.00
0.8000	1.8255	-682221.	39826.	-0.02679	0.00	3.75E+09	-108.6114	285.5774	0.00
1.2000	1.6949	-492309.	39156.	-0.02754	0.00	3.79E+09	-170.5432	482.9945	0.00
1.6000	1.5612	-306327.	38187.	-0.02788	0.00	2.50E+10	-233.0317	716.4795	0.00
2.0000	1.4272	-125714.	36923.	-0.02792	0.00	2.53E+10	-293.6379	987.5610	0.00
2.4000	1.2931	48133.	35375.	-0.02793	0.00	2.54E+10	-351.2175	1304.	0.00
2.8000	1.1591	213889.	33555.	-0.02790	0.00	2.52E+10	-407.1308	1686.	0.00
3.2000	1.0253	370264.	31480.	-0.02765	0.00	3.81E+09	-457.5765	2142.	0.00

3.6000	0.8937	516097.	29178.	-0.02709	0.00	3.78E+09	-501.4457	2693.	0.00
4.0000	0.7652	650376.	26663.	-0.02635	0.00	3.76E+09	-546.6198	3429.	0.00
4.4000	0.6407	772062.	23857.	-0.02543	0.00	3.73E+09	-622.3364	4662.	0.00
4.8000	0.5210	879408.	20399.	-0.02427	0.00	3.14E+09	-818.8952	7544.	0.00
5.2000	0.4078	967887.	15889.	-0.02272	0.00	2.65E+09	-1060.	12480.	0.00
5.6000	0.3029	1031938.	10120.	-0.02064	0.00	2.05E+09	-1343.	21283.	0.00
6.0000	0.2097	1065040.	3717.	-0.01715	0.00	1.12E+09	-1325.	30324.	0.00
6.4000	0.1383	1067621.	-2509.	-0.01234	0.00	1.01E+09	-1269.	44059.	0.00
6.8000	0.09126	1040955.	-8461.	-0.00841	0.00	1.80E+09	-1211.	63685.	0.00
7.2000	0.05756	986393.	-14081.	-0.00610	0.00	2.57E+09	-1131.	94309.	0.00
7.6000	0.03269	905774.	-18763.	-0.00445	0.00	2.97E+09	-819.8709	120384.	0.00
8.0000	0.01484	806265.	-21672.	-0.00320	0.00	3.70E+09	-391.8852	126720.	0.00
8.4000	0.00202	697727.	-22746.	-0.00223	0.00	3.75E+09	-55.9391	133056.	0.00
8.8000	-0.00652	587901.	-22426.	-0.00140	0.00	3.77E+09	189.2946	139392.	0.00
9.2000	-0.01146	482436.	-21137.	-7.24E-04	0.00	3.79E+09	347.9686	145728.	0.00
9.6000	-0.01347	384987.	-19277.	-1.76E-04	0.00	3.81E+09	426.7732	152064.	0.00
10.0000	-0.01315	297372.	-17212.	9.51E-05	0.00	2.50E+10	434.0053	158400.	0.00
10.4000	-0.01256	219757.	-15136.	1.45E-04	0.00	2.51E+10	431.0004	164736.	0.00
10.8000	-0.01176	152071.	-13095.	1.80E-04	0.00	2.52E+10	419.2525	171072.	0.00
11.2000	-0.01083	94045.	-11128.	2.03E-04	0.00	2.53E+10	400.2757	177408.	0.00
11.6000	-0.00981	45242.	-9266.	2.17E-04	0.00	2.54E+10	375.5586	183744.	0.00
12.0000	-0.00875	5091.	-7533.	2.21E-04	0.00	2.54E+10	346.5248	190080.	0.00
12.4000	-0.00769	-27076.	-5947.	2.19E-04	0.00	2.54E+10	314.5032	196416.	0.00
12.8000	-0.00665	-51996.	-4518.	2.12E-04	0.00	2.54E+10	280.7075	202752.	0.00
13.2000	-0.00565	-70450.	-3253.	2.00E-04	0.00	2.54E+10	246.2220	209088.	0.00
13.6000	-0.00472	-83230.	-2154.	1.86E-04	0.00	2.53E+10	211.9884	215424.	0.00
14.0000	-0.00387	-91126.	-1216.	1.69E-04	0.00	2.53E+10	178.7993	221760.	0.00
14.4000	-0.00310	-94902.	-433.2353	1.52E-04	0.00	2.53E+10	147.2970	228096.	0.00
14.8000	-0.00242	-95285.	203.4253	1.33E-04	0.00	2.53E+10	117.9783	234432.	0.00
15.2000	-0.00182	-92949.	705.4594	1.16E-04	0.00	2.53E+10	91.2026	240768.	0.00
15.6000	-0.00131	-88512.	1086.	9.84E-05	0.00	2.53E+10	67.2036	247104.	0.00
16.0000	-8.73E-04	-82527.	1358.	8.22E-05	0.00	2.53E+10	46.1022	253440.	0.00
16.4000	-5.16E-04	-75480.	1535.	6.73E-05	0.00	2.53E+10	27.9214	259776.	0.00
16.8000	-2.27E-04	-67789.	1632.	5.37E-05	0.00	2.54E+10	12.6018	266112.	0.00
17.2000	-2.91E-07	-59808.	1663.	4.16E-05	0.00	2.54E+10	0.01651	272448.	0.00
17.6000	1.72E-04	-51826.	1639.	3.11E-05	0.00	2.54E+10	-10.0132	278784.	0.00
18.0000	2.98E-04	-44076.	1572.	2.20E-05	0.00	2.54E+10	-17.7036	285120.	0.00
18.4000	3.84E-04	-36733.	1474.	1.44E-05	0.00	2.54E+10	-23.2965	291456.	0.00
18.8000	4.36E-04	-29927.	1353.	8.07E-06	0.00	2.54E+10	-27.0481	297792.	0.00
19.2000	4.61E-04	-23744.	1218.	3.00E-06	0.00	2.54E+10	-29.2184	304128.	0.00
19.6000	4.65E-04	-18234.	1076.	-9.64E-07	0.00	2.54E+10	-30.0626	310464.	0.00
20.0000	4.52E-04	-13417.	931.9799	-3.95E-06	0.00	2.54E+10	-29.8252	316800.	0.00
20.4000	4.27E-04	-9287.	791.4362	-6.10E-06	0.00	2.54E+10	-28.7347	323136.	0.00
20.8000	3.93E-04	-5819.	657.6730	-7.52E-06	0.00	2.54E+10	-27.0000	329472.	0.00
21.2000	3.55E-04	-2973.	533.3344	-8.36E-06	0.00	2.54E+10	-24.8078	335808.	0.00
21.6000	3.13E-04	-699.0419	420.2252	-8.70E-06	0.00	2.54E+10	-22.3211	342144.	0.00
22.0000	2.71E-04	1061.	319.4253	-8.67E-06	0.00	2.54E+10	-19.6789	348480.	0.00
22.4000	2.30E-04	2367.	231.4039	-8.34E-06	0.00	2.54E+10	-16.9967	354816.	0.00

22.8000	1.91E-04	3282.	156.1298	-7.81E-06	0.00	2.54E+10	-14.3675	361152.	0.00
23.2000	1.55E-04	3866.	93.1760	-7.14E-06	0.00	2.54E+10	-11.8632	367488.	0.00
23.6000	1.22E-04	4177.	41.8155	-6.38E-06	0.00	2.54E+10	-9.5370	373824.	0.00
24.0000	9.37E-05	4268.	1.1069	-5.58E-06	0.00	2.54E+10	-7.4249	380160.	0.00
24.4000	6.89E-05	4187.	-30.0295	-4.78E-06	0.00	2.54E+10	-5.5486	386496.	0.00
24.8000	4.79E-05	3979.	-52.7483	-4.01E-06	0.00	2.54E+10	-3.9175	392832.	0.00
25.2000	3.04E-05	3681.	-68.2247	-3.28E-06	0.00	2.54E+10	-2.5310	399168.	0.00
25.6000	1.63E-05	3324.	-77.6118	-2.62E-06	0.00	2.54E+10	-1.3804	405504.	0.00
26.0000	5.26E-06	2936.	-82.0076	-2.03E-06	0.00	2.54E+10	-0.4512	411840.	0.00
26.4000	-3.16E-06	2537.	-82.4298	-1.51E-06	0.00	2.54E+10	0.2753	418176.	0.00
26.8000	-9.28E-06	2145.	-79.7998	-1.07E-06	0.00	2.54E+10	0.8205	424512.	0.00
27.2000	-1.35E-05	1771.	-74.9330	-7.02E-07	0.00	2.54E+10	1.2073	430848.	0.00
27.6000	-1.60E-05	1425.	-68.5341	-4.00E-07	0.00	2.54E+10	1.4589	437184.	0.00
28.0000	-1.73E-05	1113.	-61.1980	-1.60E-07	0.00	2.54E+10	1.5978	443520.	0.00
28.4000	-1.76E-05	837.8542	-53.4141	2.39E-08	0.00	2.54E+10	1.6455	449856.	0.00
28.8000	-1.71E-05	600.4227	-45.5729	1.60E-07	0.00	2.54E+10	1.6217	456192.	0.00
29.2000	-1.60E-05	400.3542	-37.9752	2.54E-07	0.00	2.54E+10	1.5441	462528.	0.00
29.6000	-1.46E-05	235.8608	-30.8416	3.14E-07	0.00	2.54E+10	1.4283	468864.	0.00
30.0000	-1.30E-05	104.2745	-24.3236	3.47E-07	0.00	2.54E+10	1.2876	475200.	0.00
30.4000	-1.13E-05	2.3540	-18.5139	3.57E-07	0.00	2.54E+10	1.1332	481536.	0.00
30.8000	-9.58E-06	-73.4586	-13.4567	3.50E-07	0.00	2.54E+10	0.9740	487872.	0.00
31.2000	-7.94E-06	-126.8305	-9.1579	3.31E-07	0.00	2.54E+10	0.8172	494208.	0.00
31.6000	-6.41E-06	-161.3749	-5.5936	3.04E-07	0.00	2.54E+10	0.6680	500544.	0.00
32.0000	-5.02E-06	-180.5287	-2.7178	2.71E-07	0.00	2.54E+10	0.5302	506880.	0.00
32.4000	-3.80E-06	-187.4662	-0.4702	2.37E-07	0.00	2.54E+10	0.4063	513216.	0.00
32.8000	-2.75E-06	-185.0423	1.2191	2.01E-07	0.00	2.54E+10	0.2976	519552.	0.00
33.2000	-1.87E-06	-175.7627	2.4239	1.67E-07	0.00	2.54E+10	0.2044	525888.	0.00
33.6000	-1.14E-06	-161.7730	3.2184	1.36E-07	0.00	2.54E+10	0.1266	532224.	0.00
34.0000	-5.65E-07	-144.8656	3.6745	1.07E-07	0.00	2.54E+10	0.06339	538560.	0.00
34.4000	-1.19E-07	-126.4977	3.8591	8.09E-08	0.00	2.54E+10	0.01353	544896.	0.00
34.8000	2.12E-07	-107.8181	3.8332	5.88E-08	0.00	2.54E+10	-0.02433	551232.	0.00
35.2000	4.45E-07	-89.6990	3.6507	4.01E-08	0.00	2.54E+10	-0.05171	557568.	0.00
35.6000	5.97E-07	-72.7714	3.3582	2.48E-08	0.00	2.54E+10	-0.07015	563904.	0.00
36.0000	6.83E-07	-57.4600	2.9951	1.25E-08	0.00	2.54E+10	-0.08115	570240.	0.00
36.4000	7.17E-07	-44.0183	2.5937	2.90E-09	0.00	2.54E+10	-0.08612	576576.	0.00
36.8000	7.11E-07	-32.5608	2.1798	-4.34E-09	0.00	2.54E+10	-0.08633	582912.	0.00
37.2000	6.75E-07	-23.0925	1.7736	-9.59E-09	0.00	2.54E+10	-0.08290	589248.	0.00
37.6000	6.19E-07	-15.5343	1.3903	-1.32E-08	0.00	2.54E+10	-0.07678	595584.	0.00
38.0000	5.48E-07	-9.7452	1.0411	-1.56E-08	0.00	2.54E+10	-0.06875	601920.	0.00
38.4000	4.69E-07	-5.5400	0.7335	-1.71E-08	0.00	2.54E+10	-0.05941	608256.	0.00
38.8000	3.84E-07	-2.7036	0.4728	-1.79E-08	0.00	2.54E+10	-0.04921	614592.	0.00
39.2000	2.97E-07	-1.0011	0.2624	-1.82E-08	0.00	2.54E+10	-0.03848	620928.	0.00
39.6000	2.10E-07	-0.1850	0.1043	-1.83E-08	0.00	2.54E+10	-0.02739	627264.	0.00
40.0000	1.22E-07	0.00	0.00	-1.83E-08	0.00	2.54E+10	-0.01606	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual

stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 16:

```
Pile-head deflection             =     2.00000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =     -1068209. inch-lbs
Maximum shear force              =        40449. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =            106
Number of zero deflection points =              4
```

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

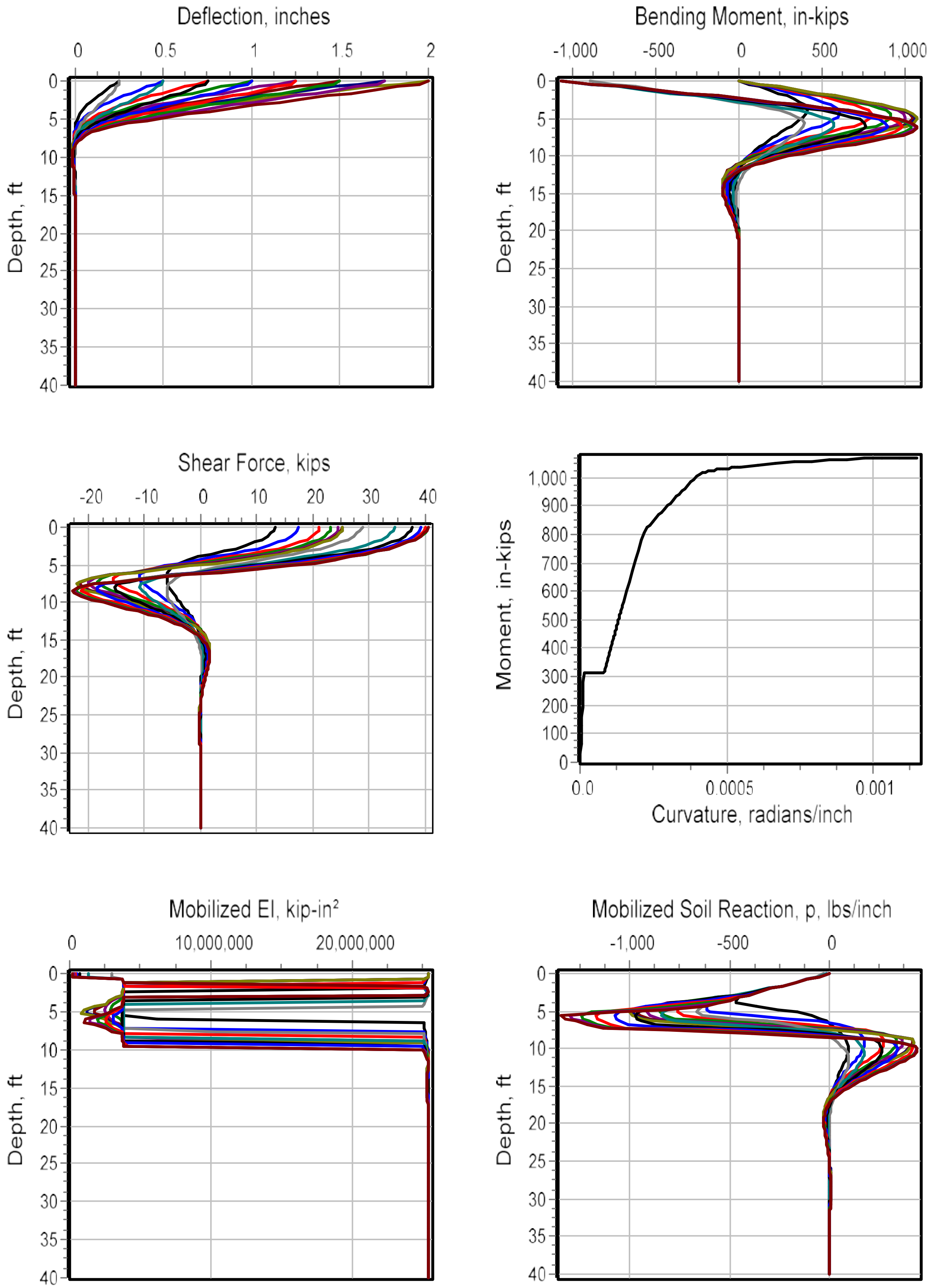
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

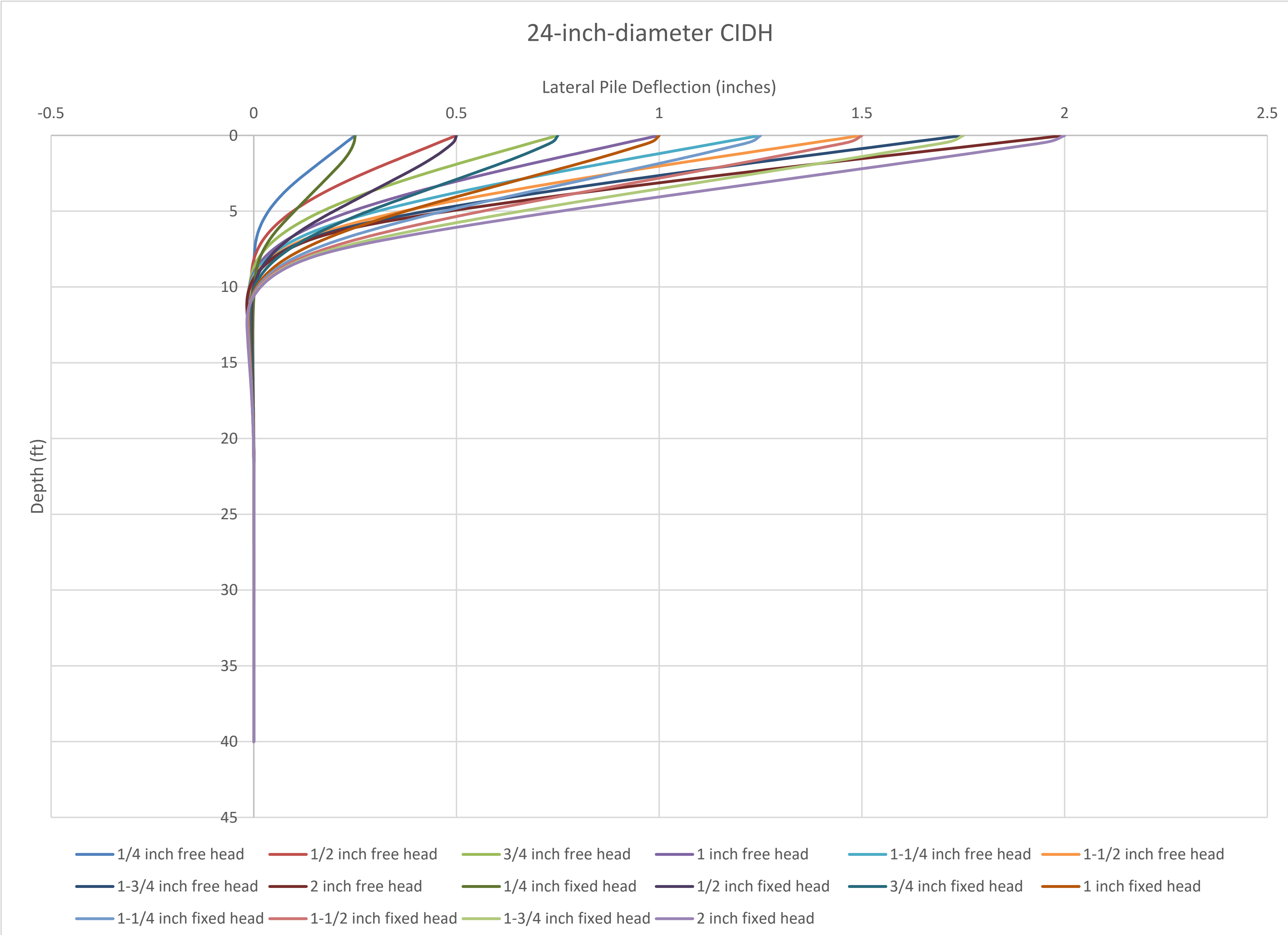
Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	y, in	0.2500	M, in-lb	0.00	0.00	0.2500	-0.00500	13293.	410504.
2	y, in	0.5000	M, in-lb	0.00	0.00	0.5000	-0.00957	17499.	606915.
3	y, in	0.7500	M, in-lb	0.00	0.00	0.7500	-0.01353	21108.	794468.
4	y, in	1.0000	M, in-lb	0.00	0.00	1.0000	-0.01779	23198.	914526.
5	y, in	1.2500	M, in-lb	0.00	0.00	1.2500	-0.02180	24602.	1003177.
6	y, in	1.5000	M, in-lb	0.00	0.00	1.5000	-0.02574	25144.	1044775.
7	y, in	1.7500	M, in-lb	0.00	0.00	1.7500	-0.02974	25283.	1060901.
8	y, in	2.0000	M, in-lb	0.00	0.00	2.0000	-0.03371	25279.	1068999.
9	y, in	0.2500	S, rad	0.00	0.00	0.2500	0.00	28762.	-894279.
10	y, in	0.5000	S, rad	0.00	0.00	0.5000	0.00	34649.	-1059144.
11	y, in	0.7500	S, rad	0.00	0.00	0.7500	0.00	37664.	-1068227.
12	y, in	1.0000	S, rad	0.00	0.00	1.0000	0.00	39303.	-1068240.
13	y, in	1.2500	S, rad	0.00	0.00	1.2500	0.00	40151.	-1068239.
14	y, in	1.5000	S, rad	0.00	0.00	1.5000	0.00	40563.	-1068215.

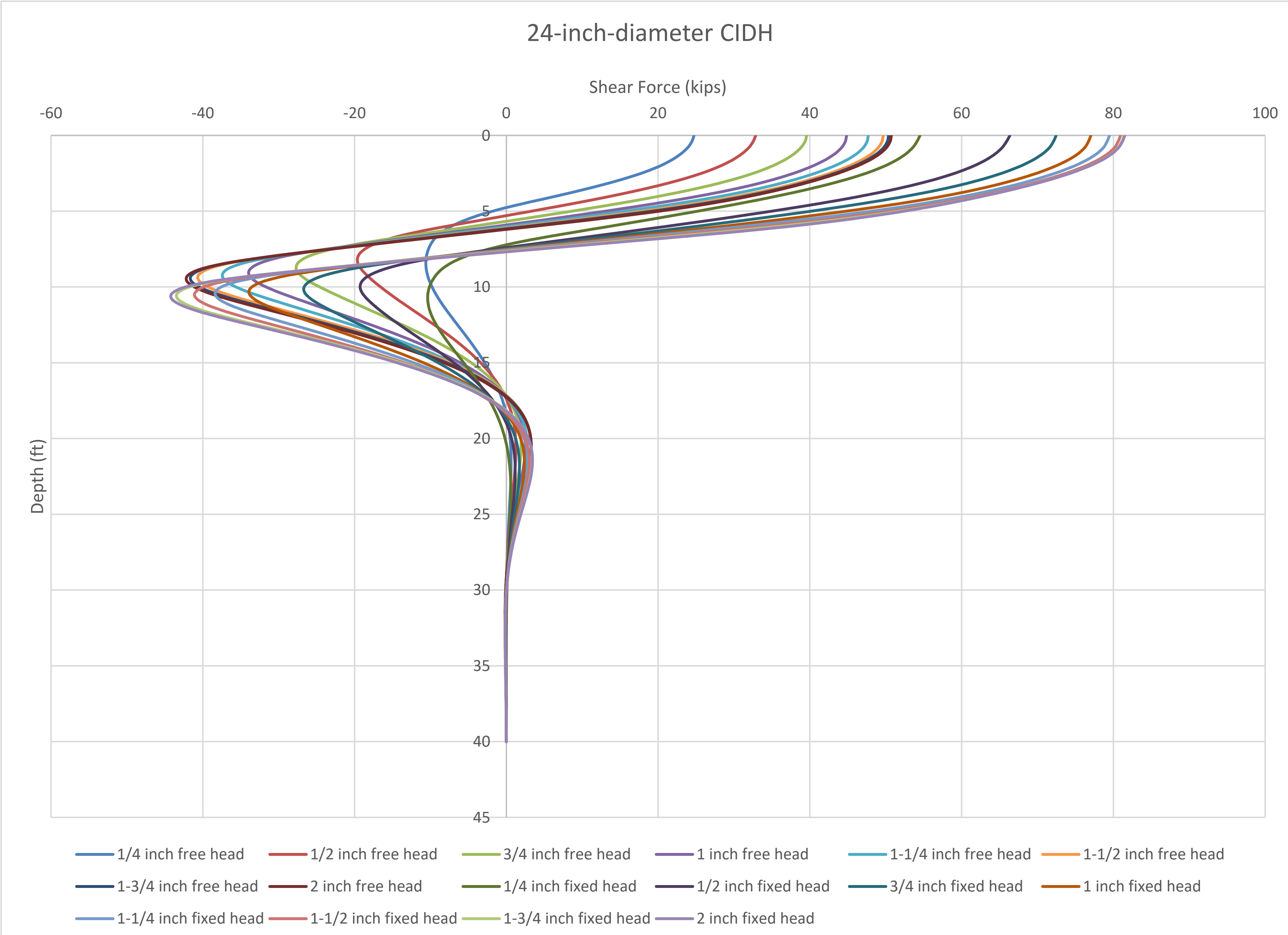
15	y, in	1.7500	S, rad	0.00	0.00	1.7500	0.00	40525.	-1068209.
16	y, in	2.0000	S, rad	0.00	0.00	2.0000	0.00	40449.	-1068209.

Maximum pile-head deflection = 2.0000000000 inches
Maximum pile-head rotation = -0.0337123246 radians = -1.931574 deg.

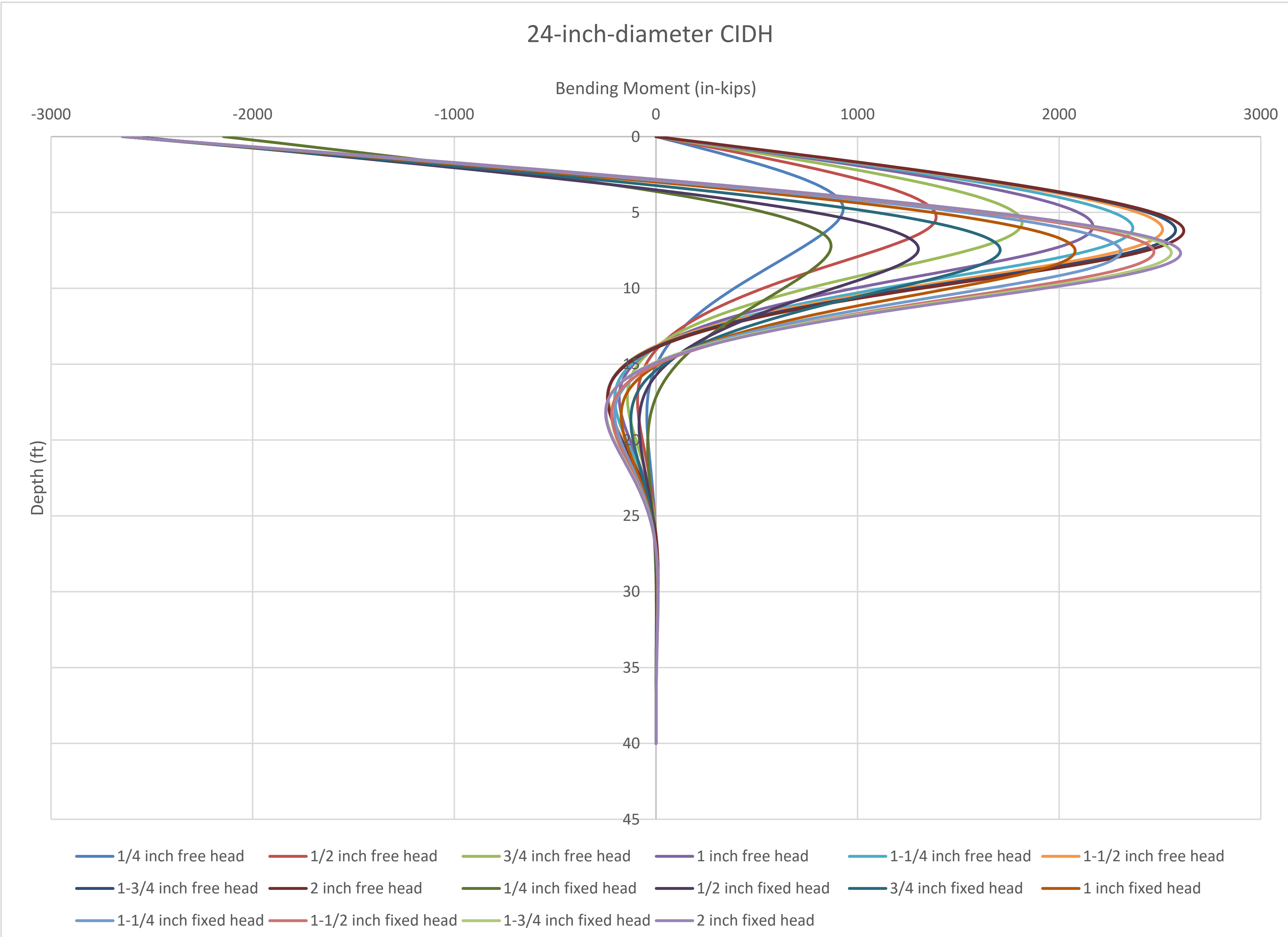
The analysis ended normally.


Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Moment, in-kips
Curvature, radians/inch
Mobilized EI, kip-in²
Depth, ft
Mobilized Soil Reaction, p, lbs/inch
Depth, ft


24-inch-diameter CIDH
Lateral Pile Deflection (inches)
-0.5
0
0.5
1
1.5
2
2.5
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head



24-inch-diameter CIDH
Shear Force (kips)
-60
-40
-20
0
20
40
60
80
100
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head



24-inch-diameter CIDH
Bending Moment (in-kips)
-3000
-2000
-1000
0
1000
2000
3000
0
5
10
15
20
25
30
35
40
45
Depth (ft)
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head

==

LPile for Windows(Beta), Version 2018-10.008

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

==

This copy of LPile is being used by:

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Files Used for Analysis

Path to file locations:
\Users\ckim\Documents\riverside arena\

Name of input data file:
RsdArena 24 CIDH 20201028.lp10

Name of output report file:
RsdArena 24 CIDH 20201028.lp10

Name of plot output file:
RsdArena 24 CIDH 20201028.lp10

Name of runtime message file:
RsdArena 24 CIDH 20201028.lp10

Date and Time of Analysis

Date: October 28, 2020 Time: 12:21:49

Problem Title

Project Name: Riverside Arena

Job Number: 12915.001

Client: CAA ICON

Engineer: ck

Description: 24 inch CIDH

Program Options and Settings

Computational Options:
- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:
- Maximum number of iterations allowed = 500
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 100.0000 in
- Number of pile increments = 100

Loading Type and Number of Cycles of Loading:
- Static loading specified

- Use of p-y modification factors for p-y curves not selected
- Analysis uses layering correction (Method of Georgiadis)

- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:
- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

```
Number of pile sections defined                          =           1
Total length of pile                                     =      40.000 ft
Depth of ground surface below top of pile                =      0.0000 ft
```

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	24.0000
2	40.000	24.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

```
   Section 1 is a round drilled shaft, bored pile, or CIDH pile
   Length of section                                     =    40.000000 ft
   Shaft Diameter                                        =    24.000000 in
```

```
   Shear capacity of section                                 =      0.0000 lbs



--------------------------------------------------------------------------------
                       Ground Slope and Pile Batter Angles
--------------------------------------------------------------------------------

Ground Slope Angle                                           =       0.000 degrees
                                                             =       0.000 radians

Pile Batter Angle                                            =       0.000 degrees
                                                             =       0.000 radians


--------------------------------------------------------------------------------
                       Soil and Rock Layering Information
--------------------------------------------------------------------------------

The soil profile is modelled using 1 layers

Layer 1 is cemented silt with cohesion and friction

   Distance from top of pile to top of layer                 =      0.0000 ft
   Distance from top of pile to bottom of layer              =  100.000000 ft
   Effective unit weight at top of layer                     =  120.000000 pcf
   Effective unit weight at bottom of layer                  =  120.000000 pcf
   Undrained cohesion at top of layer                        =  100.000000 psf
   Undrained cohesion at bottom of layer                     =  100.000000 psf
   Friction angle at top of layer                            =   30.000000 deg.
   Friction angle at bottom of layer                         =   30.000000 deg.
   Epsilon-50 at top of layer                                =      0.0000
   Epsilon-50 at bottom of layer                             =      0.0000
   Subgrade k at top of layer                                =      0.0000 pci
   Subgrade k at bottom of layer                             =      0.0000 pci

   NOTE: Default values for Epsilon-50 will be computed for this layer.
   NOTE: Default values for subgrade k will be computed for this layer.

 (Depth of the lowest soil layer extends 60.000 ft below the pile tip)



--------------------------------------------------------------------------------
                        Summary of Input Soil Properties
--------------------------------------------------------------------------------
```

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Cemented	0.00	120.0000	100.0000	30.0000	default	default
	Silt	100.0000	120.0000	100.0000	30.0000	default	default

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 16

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	4	y = 0.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
2	4	y = 0.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
3	4	y = 0.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
4	4	y = 1.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
5	4	y = 1.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
6	4	y = 1.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
7	4	y = 1.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
8	4	y = 2.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
9	5	y = 0.250000 in	S = 0.0000 in/in	0.0000000	N.A.
10	5	y = 0.500000 in	S = 0.0000 in/in	0.0000000	N.A.
11	5	y = 0.750000 in	S = 0.0000 in/in	0.0000000	N.A.
12	5	y = 1.000000 in	S = 0.0000 in/in	0.0000000	N.A.
13	5	y = 1.250000 in	S = 0.0000 in/in	0.0000000	N.A.
14	5	y = 1.500000 in	S = 0.0000 in/in	0.0000000	N.A.
15	5	y = 1.750000 in	S = 0.0000 in/in	0.0000000	N.A.
16	5	y = 2.000000 in	S = 0.0000 in/in	0.0000000	N.A.

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with

specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	40.000000 ft
Shaft Diameter	=	24.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	3.000000 in
Number of Reinforcing Bars	=	8 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	452.389342 sq. in.
Total Area of Reinforcing Steel	=	4.800000 sq. in.
Area Ratio of Steel Reinforcement	=	1.06 percent
Edge-to-Edge Bar Spacing	=	5.678454 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	7.57
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	2190.255 kips
Tensile Load for Cracking of Concrete	=	-223.423 kips
Nominal Axial Tensile Capacity	=	-288.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	0.875000	0.600000	8.562500	0.00000
2	0.875000	0.600000	6.054602	6.054602

3	0.875000	0.600000	0.00000	8.562500
4	0.875000	0.600000	-6.054602	6.054602
5	0.875000	0.600000	-8.562500	0.00000
6	0.875000	0.600000	-6.054602	-6.054602
7	0.875000	0.600000	0.00000	-8.562500
8	0.875000	0.600000	6.054602	-6.054602

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 5.678 inches
between bars 1 and 2.

Ratio of bar spacing to maximum aggregate size = 7.57

Concrete Properties:

Compressive Strength of Concrete	=	5000. psi
Modulus of Elasticity of Concrete	=	4030509. psi
Modulus of Rupture of Concrete	=	-530.330086 psi
Compression Strain at Peak Stress	=	0.002109
Tensile Strain at Fracture of Concrete	=	-0.0001150
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.

Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
0.00000125	101.6533994	81322720.	11.9999753	0.00001500	-0.00001500	0.0701673	-0.4306509	
0.00000250	202.8449908	81137996.	11.9999752	0.00003000	-0.00003000	0.1398388	-0.8613018	
0.00000375	303.5747740	80953273.	11.9999751	0.00004500	-0.00004500	0.2090144	-1.2919527	
0.00000500	403.8427492	80768550.	11.9999750	0.00006000	-0.00006000	0.2776942	-1.7226036	
0.00000625	503.6489162	80583827.	11.9999749	0.00007500	-0.00007500	0.3458782	-2.1532545	
0.00000750	602.9932752	80399103.	11.9999748	0.00009000	-0.00009000	0.4135663	-2.5839054	
0.00000875	701.8758261	80214380.	11.9999748	0.0001050	-0.0001050	0.4807586	-3.0145564	
0.00001000	701.8758261	70187583.	5.6617972	0.00005662	-0.0001834	0.2593269	-5.2832788	C
0.00001125	701.8758261	62388962.	5.6634425	0.00006371	-0.0002063	0.2913424	-5.9431518	C
0.00001250	701.8758261	56150066.	5.6650912	0.00007081	-0.0002292	0.3232685	-6.6029044	C
0.00001375	701.8758261	51045515.	5.6667432	0.00007792	-0.0002521	0.3551050	-7.2625361	C
0.00001500	701.8758261	46791722.	5.6683986	0.00008503	-0.0002750	0.3868519	-7.9220466	C
0.00001625	701.8758261	43192359.	5.6700572	0.00009214	-0.0002979	0.4185089	-8.5814355	C
0.00001750	701.8758261	40107190.	5.6717193	0.00009926	-0.0003207	0.4500759	-9.2407024	C
0.00001875	701.8758261	37433377.	5.6733848	0.0001064	-0.0003436	0.4815528	-9.8998470	C
0.00002000	701.8758261	35093791.	5.6750536	0.0001135	-0.0003665	0.5129395	-10.5588689	C
0.00002125	701.8758261	33029451.	5.6767258	0.0001206	-0.0003894	0.5442358	-11.2177676	C
0.00002250	701.8758261	31194481.	5.6784015	0.0001278	-0.0004122	0.5754415	-11.8765430	C
0.00002375	701.8758261	29552666.	5.6800806	0.0001349	-0.0004351	0.6065566	-12.5351944	C
0.00002500	701.8758261	28075033.	5.6817632	0.0001420	-0.0004580	0.6375809	-13.1937216	C
0.00002625	701.8758261	26738127.	5.6834492	0.0001492	-0.0004808	0.6685142	-13.8521242	C
0.00002750	701.8758261	25522757.	5.6851387	0.0001563	-0.0005037	0.6993564	-14.5104018	C
0.00002875	701.8758261	24413072.	5.6868317	0.0001635	-0.0005265	0.7301073	-15.1685540	C
0.00003000	701.8758261	23395861.	5.6885283	0.0001707	-0.0005493	0.7607669	-15.8265803	C
0.00003125	701.8758261	22460026.	5.6902283	0.0001778	-0.0005722	0.7913349	-16.4844805	C
0.00003250	701.8758261	21596179.	5.6919319	0.0001850	-0.0005950	0.8218112	-17.1422541	C
0.00003375	701.8758261	20796321.	5.6936391	0.0001922	-0.0006178	0.8521957	-17.7999007	C
0.00003500	701.8758261	20053595.	5.6953498	0.0001993	-0.0006407	0.8824882	-18.4574199	C
0.00003625	701.8758261	19362092.	5.6970641	0.0002065	-0.0006635	0.9126885	-19.1148113	C
0.00003750	701.8758261	18716689.	5.6987820	0.0002137	-0.0006863	0.9427966	-19.7720745	C
0.00003875	701.8758261	18112925.	5.7005035	0.0002209	-0.0007091	0.9728123	-20.4292091	C
0.00004000	701.8758261	17546896.	5.7022287	0.0002281	-0.0007319	1.0027354	-21.0862146	C
0.00004125	701.8758261	17015172.	5.7039575	0.0002353	-0.0007547	1.0325658	-21.7430907	C
0.00004250	701.8758261	16514725.	5.7056900	0.0002425	-0.0007775	1.0623032	-22.3998370	C
0.00004375	701.8758261	16042876.	5.7074262	0.0002497	-0.0008003	1.0919477	-23.0564530	C
0.00004500	701.8758261	15597241.	5.7091660	0.0002569	-0.0008231	1.1214989	-23.7129382	C
0.00004625	701.8758261	15175694.	5.7109096	0.0002641	-0.0008459	1.1509569	-24.3692924	C
0.00004750	701.8758261	14776333.	5.7126569	0.0002714	-0.0008686	1.1803213	-25.0255150	C

0.00004875	701.8758261	14397453.	5.7144079	0.0002786	-0.0008914	1.2095920	-25.6816057	C
0.00005125	701.8758261	13695138.	5.7179213	0.0002930	-0.0009370	1.2678520	-26.9933894	C
0.00005375	724.2916400	13475193.	5.7214499	0.0003075	-0.0009825	1.3257354	-28.3046400	C
0.00005625	757.5821017	13468126.	5.7249938	0.0003220	-0.0010280	1.3832411	-29.6153539	C
0.00005875	790.8356719	13461033.	5.7285532	0.0003366	-0.0010734	1.4403678	-30.9255276	C
0.00006125	824.0521386	13453912.	5.7321281	0.0003511	-0.0011189	1.4971141	-32.2351575	C
0.00006375	857.2312872	13446765.	5.7357188	0.0003657	-0.0011643	1.5534788	-33.5442400	C
0.00006625	890.3729010	13439591.	5.7393253	0.0003802	-0.0012098	1.6094606	-34.8527713	C
0.00006875	923.4767606	13432389.	5.7429479	0.0003948	-0.0012552	1.6650580	-36.1607478	C
0.00007125	956.5426443	13425160.	5.7465866	0.0004094	-0.0013006	1.7202698	-37.4681655	C
0.00007375	989.5703277	13417903.	5.7502417	0.0004241	-0.0013459	1.7750947	-38.7750208	C
0.00007625	1023.	13410617.	5.7539132	0.0004387	-0.0013913	1.8295312	-40.0813097	C
0.00007875	1056.	13403304.	5.7576013	0.0004534	-0.0014366	1.8835779	-41.3870283	C
0.00008125	1088.	13395962.	5.7613062	0.0004681	-0.0014819	1.9372335	-42.6921726	C
0.00008375	1121.	13388591.	5.7650280	0.0004828	-0.0015272	1.9904965	-43.9967386	C
0.00008625	1154.	13381191.	5.7687669	0.0004976	-0.0015724	2.0433656	-45.3007222	C
0.00008875	1187.	13373761.	5.7725230	0.0005123	-0.0016177	2.0958392	-46.6041193	C
0.00009125	1220.	13366303.	5.7762965	0.0005271	-0.0016629	2.1479160	-47.9069257	C
0.00009375	1252.	13358814.	5.7800876	0.0005419	-0.0017081	2.1995944	-49.2091372	C
0.00009625	1285.	13351295.	5.7838965	0.0005567	-0.0017533	2.2508729	-50.5107494	C
0.00009875	1318.	13343746.	5.7877232	0.0005715	-0.0017985	2.3017502	-51.8117581	C
0.0001013	1350.	13336166.	5.7915681	0.0005864	-0.0018436	2.3522246	-53.1121588	C
0.0001038	1383.	13328555.	5.7954312	0.0006013	-0.0018887	2.4022946	-54.4119471	C
0.0001063	1415.	13320913.	5.7993127	0.0006162	-0.0019338	2.4519587	-55.7111184	C
0.0001088	1448.	13313240.	5.8032128	0.0006311	-0.0019789	2.5012152	-57.0096682	C
0.0001113	1480.	13305535.	5.8071318	0.0006460	-0.0020240	2.5500627	-58.3075919	C
0.0001138	1513.	13297797.	5.8110697	0.0006610	-0.0020690	2.5984995	-59.6048846	C
0.0001163	1545.	13290028.	5.8150268	0.0006760	-0.0021140	2.6465240	-60.0000000	CY
0.0001188	1577.	13282225.	5.8190032	0.0006910	-0.0021590	2.6941346	-60.0000000	CY
0.0001213	1610.	13274390.	5.8229993	0.0007060	-0.0022040	2.7413296	-60.0000000	CY
0.0001238	1642.	13266522.	5.8270150	0.0007211	-0.0022489	2.7881073	-60.0000000	CY
0.0001263	1674.	13258620.	5.8310507	0.0007362	-0.0022938	2.8344661	-60.0000000	CY
0.0001288	1706.	13250684.	5.8351066	0.0007513	-0.0023387	2.8804042	-60.0000000	CY
0.0001313	1738.	13242713.	5.8391829	0.0007664	-0.0023836	2.9259199	-60.0000000	CY
0.0001338	1770.	13234709.	5.8432797	0.0007815	-0.0024285	2.9710115	-60.0000000	CY
0.0001363	1802.	13226669.	5.8473973	0.0007967	-0.0024733	3.0156771	-60.0000000	CY
0.0001388	1833.	13213551.	5.8508126	0.0008118	-0.0025182	3.0596189	-60.0000000	CY
0.0001413	1861.	13177612.	5.8509104	0.0008264	-0.0025636	3.1017494	-60.0000000	CY
0.0001438	1886.	13119194.	5.8476509	0.0008406	-0.0026094	3.1420241	-60.0000000	CY
0.0001463	1908.	13048535.	5.8425063	0.0008545	-0.0026555	3.1810319	-60.0000000	CY
0.0001488	1931.	12979394.	5.8375547	0.0008683	-0.0027017	3.2196345	-60.0000000	CY
0.0001588	2020.	12722693.	5.8204584	0.0009240	-0.0028860	3.3703994	-60.0000000	CY
0.0001688	2101.	12452766.	5.7998355	0.0009787	-0.0030713	3.5120722	-60.0000000	CY
0.0001788	2139.	11966297.	5.7379375	0.0010257	-0.0032643	3.6280214	-60.0000000	CY
0.0001888	2168.	11488492.	5.6756552	0.0010713	-0.0034587	3.7361454	-60.0000000	CY
0.0001988	2198.	11057282.	5.6193702	0.0011168	-0.0036532	3.8397095	-60.0000000	CY
0.0002088	2226.	10665664.	5.5674512	0.0011622	-0.0038478	3.9383791	-60.0000000	CY
0.0002188	2255.	10308949.	5.5210923	0.0012077	-0.0040423	4.0330358	-60.0000000	CY

0.0002288	2284.	9982545.	5.4795787	0.0012535	-0.0042365	4.1236330	-60.0000000	CY
0.0002388	2312.	9682626.	5.4423160	0.0012994	-0.0044306	4.2101227	-60.0000000	CY
0.0002488	2340.	9405984.	5.4088057	0.0013454	-0.0046246	4.2924557	-60.0000000	CY
0.0002588	2367.	9149508.	5.3771833	0.0013913	-0.0048187	4.3699525	-60.0000000	CY
0.0002688	2395.	8911196.	5.3481110	0.0014373	-0.0050127	4.4430393	-60.0000000	CY
0.0002788	2422.	8689229.	5.3218561	0.0014835	-0.0052065	4.5119238	-60.0000000	CY
0.0002888	2449.	8481893.	5.2981417	0.0015298	-0.0054002	4.5765505	-60.0000000	CY
0.0002988	2474.	8280465.	5.2738593	0.0015756	-0.0055944	4.6357657	-60.0000000	CY
0.0003088	2492.	8071732.	5.2437521	0.0016190	-0.0057910	4.6878227	-60.0000000	CY
0.0003188	2503.	7852894.	5.2064645	0.0016596	-0.0059904	4.7327073	-60.0000000	CY
0.0003288	2509.	7633350.	5.1659188	0.0016983	-0.0061917	4.7722752	-60.0000000	CY
0.0003388	2515.	7422973.	5.1242879	0.0017359	-0.0063941	4.8075804	-60.0000000	CY
0.0003488	2519.	7224253.	5.0849675	0.0017734	-0.0065966	4.8398911	-60.0000000	CY
0.0003588	2524.	7036380.	5.0482268	0.0018111	-0.0067989	4.8693407	-60.0000000	CY
0.0003688	2529.	6858471.	5.0138612	0.0018489	-0.0070011	4.8958963	-60.0000000	CY
0.0003788	2534.	6689731.	4.9816878	0.0018868	-0.0072032	4.9195245	-60.0000000	CY
0.0003888	2538.	6529448.	4.9515430	0.0019249	-0.0074051	4.9401907	-60.0000000	CY
0.0003988	2543.	6376982.	4.9232795	0.0019632	-0.0076068	4.9578600	-60.0000000	CY
0.0004088	2547.	6231152.	4.8945699	0.0020007	-0.0078093	4.9721796	-60.0000000	CY
0.0004188	2551.	6092010.	4.8672948	0.0020382	-0.0080118	4.9835443	-60.0000000	CY
0.0004288	2555.	5959162.	4.8416454	0.0020759	-0.0082141	4.9919710	-60.0000000	CY
0.0004388	2559.	5832175.	4.8175166	0.0021137	-0.0084163	4.9974228	-60.0000000	CY
0.0004488	2563.	5710654.	4.7948129	0.0021517	-0.0086183	4.9998617	60.0000000	CY
0.0004588	2566.	5594171.	4.7735261	0.0021899	-0.0088201	4.9920278	60.0000000	CY
0.0004688	2570.	5482451.	4.7535104	0.0022282	-0.0090218	4.9972502	60.0000000	CY
0.0004788	2573.	5375223.	4.7346567	0.0022667	-0.0092233	4.9997621	60.0000000	CY
0.0004888	2577.	5272121.	4.7170102	0.0023054	-0.0094246	4.9908755	60.0000000	CY
0.0004988	2580.	5172938.	4.7004477	0.0023443	-0.0096257	4.9954215	60.0000000	CY
0.0005088	2583.	5077504.	4.6848284	0.0023834	-0.0098266	4.9989364	60.0000000	CY
0.0005188	2586.	4985412.	4.6690264	0.0024221	-0.0100279	4.9991607	60.0000000	CY
0.0005288	2589.	4896447.	4.6538244	0.0024607	-0.0102293	4.9904110	60.0000000	CY
0.0005388	2592.	4810673.	4.6394457	0.0024995	-0.0104305	4.9956836	60.0000000	CY
0.0005488	2594.	4727913.	4.6258505	0.0025384	-0.0106316	4.9988895	60.0000000	CY
0.0006088	2609.	4285729.	4.5597262	0.0027757	-0.0118343	4.9958451	60.0000000	CY
0.0006688	2621.	3919229.	4.5142716	0.0030189	-0.0130311	4.9879127	60.0000000	CYT
0.0007288	2631.	3610360.	4.4835686	0.0032674	-0.0142226	4.9904045	60.0000000	CYT
0.0007888	2639.	3346353.	4.4637576	0.0035208	-0.0154092	4.9999303	60.0000000	CYT
0.0008488	2646.	3117870.	4.4524428	0.0037790	-0.0165910	4.9957681	60.0000000	CYT
0.0009088	2646.	2912013.	4.4715220	0.0040635	-0.0177465	4.9845132	60.0000000	CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.000	2620.047	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	2620.	0.0000	1703.	13251423.
1	0.70	2620.	0.0000	1834.	13212711.
1	0.75	2620.	0.0000	1965.	12880364.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 0.250000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	0.00	24734.	-0.00407	0.00	8.13E+10	-34.3300	329.5682	0.00
0.4000	0.2304	118327.	24451.	-0.00407	0.00	8.13E+10	-83.6435	1742.	0.00

0.8000	0.2109	234727.	23900.	-0.00406	0.00	8.11E+10	-145.8179	3318.	0.00
1.2000	0.1915	347767.	23036.	-0.00404	0.00	8.09E+10	-213.9894	5365.	0.00
1.6000	0.1721	455877.	21848.	-0.00402	0.00	8.07E+10	-281.3588	7847.	0.00
2.0000	0.1529	557505.	20301.	-0.00399	0.00	8.05E+10	-362.8741	11393.	0.00
2.4000	0.1338	650772.	18322.	-0.00395	0.00	8.03E+10	-461.7407	16562.	0.00
2.8000	0.1149	733400.	15899.	-0.00380	0.00	1.35E+10	-547.8892	22880.	0.00
3.2000	0.09732	803405.	13096.	-0.00353	0.00	1.35E+10	-620.0157	30581.	0.00
3.6000	0.08107	859125.	9971.	-0.00323	0.00	1.34E+10	-682.3793	40403.	0.00
4.0000	0.06629	899123.	6593.	-0.00292	0.00	1.34E+10	-725.0373	52497.	0.00
4.4000	0.05306	922416.	3047.	-0.00259	0.00	1.34E+10	-752.2032	68051.	0.00
4.8000	0.04140	928378.	-331.8627	-0.00226	0.00	1.34E+10	-655.8267	76032.	0.00
5.2000	0.03134	919230.	-3197.	-0.00193	0.00	1.34E+10	-537.8320	82368.	0.00
5.6000	0.02286	897690.	-5501.	-0.00161	0.00	1.34E+10	-422.4120	88704.	0.00
6.0000	0.01591	866418.	-7271.	-0.00129	0.00	1.34E+10	-315.0678	95040.	0.00
6.4000	0.01045	827887.	-8557.	-9.90E-04	0.00	1.35E+10	-220.7462	101376.	0.00
6.8000	0.00641	784269.	-9432.	-7.02E-04	0.00	1.35E+10	-143.8254	107712.	0.00
7.2000	0.00371	737338.	-9989.	-4.31E-04	0.00	1.35E+10	-88.1232	114048.	0.00
7.6000	0.00227	688377.	-10337.	-2.74E-04	0.00	6.47E+10	-56.9168	120384.	0.00
8.0000	0.00107	638104.	-10542.	-2.30E-04	0.00	8.03E+10	-28.3784	126720.	0.00
8.4000	6.35E-05	587178.	-10614.	-1.93E-04	0.00	8.04E+10	-1.7601	133056.	0.00
8.8000	-7.80E-04	536211.	-10564.	-1.60E-04	0.00	8.05E+10	22.6436	139392.	0.00
9.2000	-0.00147	485765.	-10402.	-1.29E-04	0.00	8.06E+10	44.6149	145728.	0.00
9.6000	-0.00202	436348.	-10142.	-1.02E-04	0.00	8.07E+10	64.0090	152064.	0.00
10.0000	-0.00245	388405.	-9794.	-7.73E-05	0.00	8.08E+10	80.7464	158400.	0.00
10.4000	-0.00276	342323.	-9373.	-5.56E-05	0.00	8.09E+10	94.8081	164736.	0.00
10.8000	-0.00298	298425.	-8890.	-3.66E-05	0.00	8.10E+10	106.2270	171072.	0.00
11.2000	-0.00311	256975.	-8359.	-2.01E-05	0.00	8.10E+10	115.0827	177408.	0.00
11.6000	-0.00317	218176.	-7792.	-6.06E-06	0.00	8.11E+10	121.4926	183744.	0.00
12.0000	-0.00317	182176.	-7198.	5.78E-06	0.00	8.12E+10	125.6066	190080.	0.00
12.4000	-0.00312	149070.	-6591.	1.56E-05	0.00	8.12E+10	127.5993	196416.	0.00
12.8000	-0.00302	118904.	-5978.	2.35E-05	0.00	8.13E+10	127.6639	202752.	0.00
13.2000	-0.00289	91680.	-5369.	2.97E-05	0.00	8.13E+10	126.0069	209088.	0.00
13.6000	-0.00274	67358.	-4772.	3.44E-05	0.00	8.13E+10	122.8420	215424.	0.00
14.0000	-0.00256	45867.	-4193.	3.77E-05	0.00	8.13E+10	118.3846	221760.	0.00
14.4000	-0.00237	27104.	-3638.	3.99E-05	0.00	8.13E+10	112.8485	228096.	0.00
14.8000	-0.00218	10940.	-3112.	4.10E-05	0.00	8.13E+10	106.4420	234432.	0.00
15.2000	-0.00198	-2770.	-2618.	4.13E-05	0.00	8.13E+10	99.3642	240768.	0.00
15.6000	-0.00178	-14192.	-2159.	4.08E-05	0.00	8.13E+10	91.8028	247104.	0.00
16.0000	-0.00159	-23499.	-1737.	3.97E-05	0.00	8.13E+10	83.9320	253440.	0.00
16.4000	-0.00140	-30871.	-1354.	3.80E-05	0.00	8.13E+10	75.9101	259776.	0.00
16.8000	-0.00122	-36495.	-1009.	3.61E-05	0.00	8.13E+10	67.8796	266112.	0.00
17.2000	-0.00106	-40555.	-701.8749	3.38E-05	0.00	8.13E+10	59.9653	272448.	0.00
17.6000	-9.00E-04	-43233.	-432.4980	3.13E-05	0.00	8.13E+10	52.2751	278784.	0.00
18.0000	-7.56E-04	-44707.	-199.2791	2.87E-05	0.00	8.13E+10	44.8995	285120.	0.00
18.4000	-6.24E-04	-45146.	-0.5307	2.61E-05	0.00	8.13E+10	37.9124	291456.	0.00
18.8000	-5.06E-04	-44712.	165.7509	2.34E-05	0.00	8.13E+10	31.3716	297792.	0.00
19.2000	-4.00E-04	-43555.	301.8110	2.08E-05	0.00	8.13E+10	25.3201	304128.	0.00
19.6000	-3.06E-04	-41815.	410.0674	1.83E-05	0.00	8.13E+10	19.7867	310464.	0.00

20.0000	-2.24E-04	-39618.	493.0465	1.59E-05	0.00	8.13E+10	14.7879	316800.	0.00
20.4000	-1.53E-04	-37081.	553.3259	1.36E-05	0.00	8.13E+10	10.3286	323136.	0.00
20.8000	-9.33E-05	-34306.	593.4838	1.15E-05	0.00	8.13E+10	6.4039	329472.	0.00
21.2000	-4.29E-05	-31384.	616.0541	9.58E-06	0.00	8.13E+10	3.0004	335808.	0.00
21.6000	-1.37E-06	-28392.	623.4896	7.81E-06	0.00	8.13E+10	0.09770	342144.	0.00
22.0000	3.21E-05	-25398.	618.1305	6.22E-06	0.00	8.13E+10	-2.3307	348480.	0.00
22.4000	5.84E-05	-22458.	602.1799	4.81E-06	0.00	8.13E+10	-4.3155	354816.	0.00
22.8000	7.83E-05	-19617.	577.6846	3.57E-06	0.00	8.13E+10	-5.8909	361152.	0.00
23.2000	9.27E-05	-16912.	546.5223	2.49E-06	0.00	8.13E+10	-7.0934	367488.	0.00
23.6000	1.02E-04	-14371.	510.3926	1.57E-06	0.00	8.13E+10	-7.9606	373824.	0.00
24.0000	1.08E-04	-12013.	470.8135	7.90E-07	0.00	8.13E+10	-8.5307	380160.	0.00
24.4000	1.10E-04	-9851.	429.1212	1.45E-07	0.00	8.13E+10	-8.8411	386496.	0.00
24.8000	1.09E-04	-7893.	386.4735	-3.79E-07	0.00	8.13E+10	-8.9287	392832.	0.00
25.2000	1.06E-04	-6141.	343.8561	-7.93E-07	0.00	8.13E+10	-8.8285	399168.	0.00
25.6000	1.01E-04	-4592.	302.0911	-1.11E-06	0.00	8.13E+10	-8.5736	405504.	0.00
26.0000	9.55E-05	-3241.	261.8474	-1.34E-06	0.00	8.13E+10	-8.1946	411840.	0.00
26.4000	8.86E-05	-2078.	223.6524	-1.50E-06	0.00	8.13E+10	-7.7199	418176.	0.00
26.8000	8.11E-05	-1094.	187.9047	-1.59E-06	0.00	8.13E+10	-7.1750	424512.	0.00
27.2000	7.33E-05	-274.4893	154.8871	-1.63E-06	0.00	8.13E+10	-6.5824	430848.	0.00
27.6000	6.55E-05	393.1395	124.7801	-1.63E-06	0.00	8.13E+10	-5.9622	437184.	0.00
28.0000	5.77E-05	923.3998	97.6754	-1.59E-06	0.00	8.13E+10	-5.3315	443520.	0.00
28.4000	5.02E-05	1331.	73.5884	-1.52E-06	0.00	8.13E+10	-4.7048	449856.	0.00
28.8000	4.31E-05	1630.	52.4710	-1.44E-06	0.00	8.13E+10	-4.0941	456192.	0.00
29.2000	3.64E-05	1835.	34.2231	-1.33E-06	0.00	8.13E+10	-3.5092	462528.	0.00
29.6000	3.03E-05	1958.	18.7032	-1.22E-06	0.00	8.13E+10	-2.9574	468864.	0.00
30.0000	2.47E-05	2014.	5.7390	-1.10E-06	0.00	8.13E+10	-2.4444	475200.	0.00
30.4000	1.97E-05	2013.	-4.8646	-9.85E-07	0.00	8.13E+10	-1.9738	481536.	0.00
30.8000	1.52E-05	1967.	-13.3170	-8.68E-07	0.00	8.13E+10	-1.5480	487872.	0.00
31.2000	1.13E-05	1886.	-19.8350	-7.54E-07	0.00	8.13E+10	-1.1678	494208.	0.00
31.6000	7.99E-06	1777.	-24.6373	-6.46E-07	0.00	8.13E+10	-0.8331	500544.	0.00
32.0000	5.14E-06	1649.	-27.9394	-5.45E-07	0.00	8.13E+10	-0.5427	506880.	0.00
32.4000	2.76E-06	1509.	-29.9494	-4.52E-07	0.00	8.13E+10	-0.2948	513216.	0.00
32.8000	8.02E-07	1362.	-30.8651	-3.67E-07	0.00	8.13E+10	-0.08677	519552.	0.00
33.2000	-7.68E-07	1212.	-30.8714	-2.91E-07	0.00	8.13E+10	0.08412	525888.	0.00
33.6000	-1.99E-06	1065.	-30.1390	-2.24E-07	0.00	8.13E+10	0.2211	532224.	0.00
34.0000	-2.92E-06	923.1225	-28.8228	-1.65E-07	0.00	8.13E+10	0.3274	538560.	0.00
34.4000	-3.58E-06	788.5446	-27.0616	-1.15E-07	0.00	8.13E+10	0.4064	544896.	0.00
34.8000	-4.02E-06	663.3312	-24.9783	-7.19E-08	0.00	8.13E+10	0.4616	551232.	0.00
35.2000	-4.27E-06	548.7531	-22.6798	-3.61E-08	0.00	8.13E+10	0.4961	557568.	0.00
35.6000	-4.37E-06	445.6050	-20.2580	-6.80E-09	0.00	8.13E+10	0.5130	563904.	0.00
36.0000	-4.34E-06	354.2760	-17.7906	1.68E-08	0.00	8.13E+10	0.5151	570240.	0.00
36.4000	-4.21E-06	274.8155	-15.3420	3.54E-08	0.00	8.13E+10	0.5051	576576.	0.00
36.8000	-4.00E-06	206.9931	-12.9648	4.96E-08	0.00	8.13E+10	0.4853	582912.	0.00
37.2000	-3.73E-06	150.3530	-10.7013	6.01E-08	0.00	8.13E+10	0.4578	589248.	0.00
37.6000	-3.42E-06	104.2603	-8.5844	6.77E-08	0.00	8.13E+10	0.4243	595584.	0.00
38.0000	-3.08E-06	67.9425	-6.6393	7.27E-08	0.00	8.13E+10	0.3862	601920.	0.00
38.4000	-2.72E-06	40.5226	-4.8850	7.59E-08	0.00	8.13E+10	0.3448	608256.	0.00
38.8000	-2.35E-06	21.0469	-3.3350	7.78E-08	0.00	8.13E+10	0.3010	614592.	0.00

39.2000	-1.97E-06	8.5061	-1.9996	7.86E-08	0.00	8.13E+10	0.2554	620928.	0.00
39.6000	-1.60E-06	1.8504	-0.8861	7.89E-08	0.00	8.13E+10	0.2086	627264.	0.00
40.0000	-1.22E-06	0.00	0.00	7.90E-08	0.00	8.13E+10	0.1606	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =     0.25000000 inches
Computed slope at pile head       =    -0.00407392 radians
Maximum bending moment            =        928378. inch-lbs
Maximum shear force               =         24734. lbs
Depth of maximum bending moment   =     4.80000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             39
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                         =     0.500000 inches
Moment at pile head                               =          0.0 in-lbs
Axial load at pile head                           =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	0.00	32850.	-0.00771	0.00	8.13E+10	-40.0000	192.0000	0.00
0.4000	0.4630	157220.	32532.	-0.00770	0.00	8.13E+10	-92.3931	957.8293	0.00
0.8000	0.4261	312311.	31948.	-0.00769	0.00	8.09E+10	-151.0756	1702.	0.00
1.2000	0.3892	463921.	31067.	-0.00766	0.00	8.06E+10	-216.2055	2666.	0.00
1.6000	0.3525	610550.	29855.	-0.00763	0.00	8.04E+10	-288.7499	3932.	0.00
2.0000	0.3159	750526.	28272.	-0.00748	0.00	1.35E+10	-370.5140	5629.	0.00
2.4000	0.2807	881966.	26269.	-0.00719	0.00	1.34E+10	-464.0544	7936.	0.00
2.8000	0.2469	1002713.	23814.	-0.00685	0.00	1.34E+10	-559.2126	10870.	0.00
3.2000	0.2149	1110577.	20908.	-0.00647	0.00	1.34E+10	-651.3150	14547.	0.00

3.6000	0.1848	1203434.	17571.	-0.00606	0.00	1.34E+10	-739.1416	19200.	0.00
4.0000	0.1567	1279261.	13842.	-0.00561	0.00	1.34E+10	-814.9106	24955.	0.00
4.4000	0.1309	1336313.	9784.	-0.00514	0.00	1.33E+10	-875.8141	32114.	0.00
4.8000	0.1074	1373186.	5487.	-0.00465	0.00	1.33E+10	-914.6554	40887.	0.00
5.2000	0.08622	1388985.	1042.	-0.00416	0.00	1.33E+10	-937.4183	52187.	0.00
5.6000	0.06747	1383186.	-3475.	-0.00366	0.00	1.33E+10	-944.7544	67216.	0.00
6.0000	0.05110	1355620.	-7959.	-0.00317	0.00	1.33E+10	-923.3927	86731.	0.00
6.4000	0.03708	1306779.	-12055.	-0.00269	0.00	1.33E+10	-783.1860	101376.	0.00
6.8000	0.02532	1239894.	-15298.	-0.00223	0.00	1.34E+10	-568.1288	107712.	0.00
7.2000	0.01569	1159918.	-17556.	-0.00180	0.00	1.34E+10	-372.8109	114048.	0.00
7.6000	0.00806	1071354.	-18936.	-0.00140	0.00	1.34E+10	-202.1717	120384.	0.00
8.0000	0.00227	978131.	-19565.	-0.00103	0.00	1.34E+10	-60.0224	126720.	0.00
8.4000	-0.00183	883525.	-19587.	-6.98E-04	0.00	1.34E+10	50.8572	133056.	0.00
8.8000	-0.00443	790091.	-19157.	-4.00E-04	0.00	1.35E+10	128.6016	139392.	0.00
9.2000	-0.00567	699620.	-18435.	-1.79E-04	0.00	2.12E+10	172.1375	145728.	0.00
9.6000	-0.00615	613115.	-17554.	-8.17E-05	0.00	8.04E+10	194.8243	152064.	0.00
10.0000	-0.00645	531099.	-16576.	-4.75E-05	0.00	8.05E+10	212.9782	158400.	0.00
10.4000	-0.00661	453990.	-15520.	-1.82E-05	0.00	8.07E+10	226.7200	164736.	0.00
10.8000	-0.00663	382104.	-14409.	6.66E-06	0.00	8.08E+10	236.2420	171072.	0.00
11.2000	-0.00654	315662.	-13262.	2.74E-05	0.00	8.09E+10	241.7964	177408.	0.00
11.6000	-0.00637	254790.	-12097.	4.43E-05	0.00	8.10E+10	243.6823	183744.	0.00
12.0000	-0.00612	199533.	-10931.	5.77E-05	0.00	8.11E+10	242.2336	190080.	0.00
12.4000	-0.00581	149857.	-9778.	6.81E-05	0.00	8.12E+10	237.8098	196416.	0.00
12.8000	-0.00546	105660.	-8654.	7.56E-05	0.00	8.13E+10	230.7836	202752.	0.00
13.2000	-0.00509	66780.	-7568.	8.07E-05	0.00	8.13E+10	221.5346	209088.	0.00
13.6000	-0.00469	33005.	-6532.	8.36E-05	0.00	8.13E+10	210.4388	215424.	0.00
14.0000	-0.00428	4078.	-5552.	8.47E-05	0.00	8.13E+10	197.8635	221760.	0.00
14.4000	-0.00388	-20290.	-4635.	8.43E-05	0.00	8.13E+10	184.1610	228096.	0.00
14.8000	-0.00347	-40416.	-3786.	8.25E-05	0.00	8.13E+10	169.6639	234432.	0.00
15.2000	-0.00308	-56632.	-3007.	7.96E-05	0.00	8.13E+10	154.6811	240768.	0.00
15.6000	-0.00271	-69284.	-2301.	7.59E-05	0.00	8.13E+10	139.4943	247104.	0.00
16.0000	-0.00236	-78722.	-1668.	7.15E-05	0.00	8.13E+10	124.3564	253440.	0.00
16.4000	-0.00202	-85295.	-1107.	6.67E-05	0.00	8.13E+10	109.4898	259776.	0.00
16.8000	-0.00172	-89346.	-615.6431	6.15E-05	0.00	8.13E+10	95.0861	266112.	0.00
17.2000	-0.00143	-91206.	-192.3019	5.62E-05	0.00	8.13E+10	81.3061	272448.	0.00
17.6000	-0.00118	-91192.	166.7063	5.08E-05	0.00	8.13E+10	68.2806	278784.	0.00
18.0000	-9.45E-04	-89605.	465.2482	4.55E-05	0.00	8.13E+10	56.1118	285120.	0.00
18.4000	-7.39E-04	-86726.	707.6160	4.03E-05	0.00	8.13E+10	44.8747	291456.	0.00
18.8000	-5.58E-04	-82812.	898.4013	3.53E-05	0.00	8.13E+10	34.6192	297792.	0.00
19.2000	-4.00E-04	-78101.	1042.	3.05E-05	0.00	8.13E+10	25.3723	304128.	0.00
19.6000	-2.65E-04	-72805.	1144.	2.61E-05	0.00	8.13E+10	17.1406	310464.	0.00
20.0000	-1.50E-04	-67115.	1209.	2.19E-05	0.00	8.13E+10	9.9127	316800.	0.00
20.4000	-5.44E-05	-61196.	1242.	1.82E-05	0.00	8.13E+10	3.6617	323136.	0.00
20.8000	2.41E-05	-55192.	1247.	1.47E-05	0.00	8.13E+10	-1.6521	329472.	0.00
21.2000	8.69E-05	-49227.	1228.	1.16E-05	0.00	8.13E+10	-6.0790	335808.	0.00
21.6000	1.36E-04	-43402.	1190.	8.90E-06	0.00	8.13E+10	-9.6778	342144.	0.00
22.0000	1.72E-04	-37799.	1137.	6.51E-06	0.00	8.13E+10	-12.5128	348480.	0.00
22.4000	1.98E-04	-32485.	1072.	4.43E-06	0.00	8.13E+10	-14.6528	354816.	0.00

22.8000	2.15E-04	-27509.	997.9439	2.66E-06	0.00	8.13E+10	-16.1686	361152.	0.00
23.2000	2.24E-04	-22905.	918.0232	1.17E-06	0.00	8.13E+10	-17.1317	367488.	0.00
23.6000	2.26E-04	-18696.	834.6362	-5.47E-08	0.00	8.13E+10	-17.6129	373824.	0.00
24.0000	2.23E-04	-14893.	749.9312	-1.05E-06	0.00	8.13E+10	-17.6808	380160.	0.00
24.4000	2.16E-04	-11497.	665.7339	-1.82E-06	0.00	8.13E+10	-17.4014	386496.	0.00
24.8000	2.06E-04	-8502.	583.5630	-2.41E-06	0.00	8.13E+10	-16.8365	392832.	0.00
25.2000	1.93E-04	-5894.	504.6499	-2.84E-06	0.00	8.13E+10	-16.0439	399168.	0.00
25.6000	1.78E-04	-3657.	429.9608	-3.12E-06	0.00	8.13E+10	-15.0765	405504.	0.00
26.0000	1.63E-04	-1767.	360.2205	-3.28E-06	0.00	8.13E+10	-13.9820	411840.	0.00
26.4000	1.47E-04	-198.7529	295.9368	-3.34E-06	0.00	8.13E+10	-12.8029	418176.	0.00
26.8000	1.31E-04	1074.	237.4259	-3.31E-06	0.00	8.13E+10	-11.5766	424512.	0.00
27.2000	1.15E-04	2081.	184.8374	-3.22E-06	0.00	8.13E+10	-10.3353	430848.	0.00
27.6000	1.00E-04	2849.	138.1783	-3.08E-06	0.00	8.13E+10	-9.1060	437184.	0.00
28.0000	8.56E-05	3407.	97.3369	-2.89E-06	0.00	8.13E+10	-7.9113	443520.	0.00
28.4000	7.22E-05	3783.	62.1040	-2.68E-06	0.00	8.13E+10	-6.7691	449856.	0.00
28.8000	5.99E-05	4003.	32.1940	-2.45E-06	0.00	8.13E+10	-5.6934	456192.	0.00
29.2000	4.87E-05	4092.	7.2629	-2.21E-06	0.00	8.13E+10	-4.6945	462528.	0.00
29.6000	3.87E-05	4073.	-13.0744	-1.97E-06	0.00	8.13E+10	-3.7793	468864.	0.00
30.0000	2.98E-05	3967.	-29.2294	-1.73E-06	0.00	8.13E+10	-2.9519	475200.	0.00
30.4000	2.21E-05	3792.	-41.6272	-1.50E-06	0.00	8.13E+10	-2.2138	481536.	0.00
30.8000	1.54E-05	3567.	-50.6951	-1.29E-06	0.00	8.13E+10	-1.5645	487872.	0.00
31.2000	9.73E-06	3306.	-56.8535	-1.08E-06	0.00	8.13E+10	-1.0015	494208.	0.00
31.6000	5.00E-06	3021.	-60.5083	-8.96E-07	0.00	8.13E+10	-0.5213	500544.	0.00
32.0000	1.13E-06	2725.	-62.0450	-7.26E-07	0.00	8.13E+10	-0.1190	506880.	0.00
32.4000	-1.97E-06	2426.	-61.8242	-5.74E-07	0.00	8.13E+10	0.2110	513216.	0.00
32.8000	-4.39E-06	2131.	-60.1783	-4.40E-07	0.00	8.13E+10	0.4748	519552.	0.00
33.2000	-6.20E-06	1848.	-57.4096	-3.22E-07	0.00	8.13E+10	0.6788	525888.	0.00
33.6000	-7.48E-06	1580.	-53.7896	-2.21E-07	0.00	8.13E+10	0.8295	532224.	0.00
34.0000	-8.32E-06	1332.	-49.5584	-1.35E-07	0.00	8.13E+10	0.9334	538560.	0.00
34.4000	-8.78E-06	1104.	-44.9260	-6.34E-08	0.00	8.13E+10	0.9967	544896.	0.00
34.8000	-8.93E-06	900.2471	-40.0731	-4.24E-09	0.00	8.13E+10	1.0253	551232.	0.00
35.2000	-8.82E-06	719.7076	-35.1533	4.36E-08	0.00	8.13E+10	1.0246	557568.	0.00
35.6000	-8.51E-06	562.7757	-30.2948	8.14E-08	0.00	8.13E+10	0.9997	563904.	0.00
36.0000	-8.04E-06	428.8776	-25.6033	1.11E-07	0.00	8.13E+10	0.9551	570240.	0.00
36.4000	-7.45E-06	316.9843	-21.1642	1.33E-07	0.00	8.13E+10	0.8946	576576.	0.00
36.8000	-6.77E-06	225.7016	-17.0454	1.49E-07	0.00	8.13E+10	0.8216	582912.	0.00
37.2000	-6.02E-06	153.3483	-13.3001	1.60E-07	0.00	8.13E+10	0.7390	589248.	0.00
37.6000	-5.23E-06	98.0208	-9.9690	1.67E-07	0.00	8.13E+10	0.6490	595584.	0.00
38.0000	-4.41E-06	57.6458	-7.0832	1.72E-07	0.00	8.13E+10	0.5534	601920.	0.00
38.4000	-3.58E-06	30.0219	-4.6662	1.74E-07	0.00	8.13E+10	0.4537	608256.	0.00
38.8000	-2.74E-06	12.8503	-2.7360	1.76E-07	0.00	8.13E+10	0.3506	614592.	0.00
39.2000	-1.89E-06	3.7563	-1.3070	1.76E-07	0.00	8.13E+10	0.2448	620928.	0.00
39.6000	-1.05E-06	0.3033	-0.3913	1.76E-07	0.00	8.13E+10	0.1367	627264.	0.00
40.0000	-1.99E-07	0.00	0.00	1.76E-07	0.00	8.13E+10	0.02633	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual

stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

```
Pile-head deflection               =     0.50000000 inches
Computed slope at pile head        =    -0.00770575 radians
Maximum bending moment             =       1388985. inch-lbs
Maximum shear force                =         32850. lbs
Depth of maximum bending moment    =     5.20000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             13
Number of zero deflection points   =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 3

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                               =     0.750000 inches
Moment at pile head                                     =          0.0 in-lbs
Axial load at pile head                                 =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	0.00	39580.	-0.01105	0.00	8.13E+10	-15.0000	48.0000	0.00
0.4000	0.6969	189810.	39356.	-0.01105	0.00	8.13E+10	-78.0578	537.6011	0.00
0.8000	0.6439	377821.	38819.	-0.01103	0.00	8.08E+10	-145.9834	1088.	0.00
1.2000	0.5910	562470.	37946.	-0.01100	0.00	8.05E+10	-217.7913	1769.	0.00
1.6000	0.5383	742100.	36718.	-0.01085	0.00	1.35E+10	-293.7010	2619.	0.00
2.0000	0.4868	914963.	35112.	-0.01056	0.00	1.34E+10	-375.3554	3701.	0.00
2.4000	0.4370	1079178.	33094.	-0.01020	0.00	1.34E+10	-465.4537	5113.	0.00
2.8000	0.3889	1232669.	30619.	-0.00979	0.00	1.34E+10	-566.0473	6986.	0.00
3.2000	0.3430	1373118.	27651.	-0.00932	0.00	1.33E+10	-670.5198	9383.	0.00
3.6000	0.2995	1498119.	24183.	-0.00880	0.00	1.33E+10	-774.5667	12416.	0.00
4.0000	0.2585	1605273.	20231.	-0.00824	0.00	1.33E+10	-872.1958	16195.	0.00
4.4000	0.2203	1692333.	15843.	-0.00764	0.00	1.33E+10	-956.1132	20828.	0.00
4.8000	0.1851	1757363.	11096.	-0.00702	0.00	1.32E+10	-1022.	26489.	0.00
5.2000	0.1530	1798854.	6072.	-0.00637	0.00	1.32E+10	-1072.	33629.	0.00
5.6000	0.1239	1815654.	846.1625	-0.00572	0.00	1.32E+10	-1106.	42823.	0.00
6.0000	0.09808	1806978.	-4478.	-0.00506	0.00	1.32E+10	-1112.	54444.	0.00

6.4000	0.07536	1772670.	-9834.	-0.00441	0.00	1.32E+10	-1120.	71302.	0.00
6.8000	0.05574	1712569.	-15162.	-0.00378	0.00	1.32E+10	-1100.	94747.	0.00
7.2000	0.03909	1627120.	-20031.	-0.00317	0.00	1.33E+10	-928.6926	114048.	0.00
7.6000	0.02526	1520273.	-23780.	-0.00261	0.00	1.33E+10	-633.5528	120384.	0.00
8.0000	0.01407	1398830.	-26192.	-0.00208	0.00	1.33E+10	-371.4634	126720.	0.00
8.4000	0.00530	1268828.	-27436.	-0.00160	0.00	1.34E+10	-146.8780	133056.	0.00
8.8000	-0.00128	1135441.	-27699.	-0.00117	0.00	1.34E+10	37.2974	139392.	0.00
9.2000	-0.00591	1002915.	-27179.	-7.85E-04	0.00	1.34E+10	179.5157	145728.	0.00
9.6000	-0.00882	874524.	-26078.	-4.49E-04	0.00	1.34E+10	279.3846	152064.	0.00
10.0000	-0.01023	752570.	-24597.	-1.59E-04	0.00	1.35E+10	337.4632	158400.	0.00
10.4000	-0.01035	638392.	-22935.	-5.90E-06	0.00	8.03E+10	355.0757	164736.	0.00
10.8000	-0.01028	532394.	-21203.	2.90E-05	0.00	8.05E+10	366.4785	171072.	0.00
11.2000	-0.01007	434840.	-19431.	5.78E-05	0.00	8.07E+10	372.0840	177408.	0.00
11.6000	-0.00973	345859.	-17644.	8.10E-05	0.00	8.09E+10	372.3681	183744.	0.00
12.0000	-0.00929	265457.	-15868.	9.92E-05	0.00	8.10E+10	367.8530	190080.	0.00
12.4000	-0.00878	193531.	-14123.	1.13E-04	0.00	8.11E+10	359.0914	196416.	0.00
12.8000	-0.00821	129878.	-12429.	1.22E-04	0.00	8.12E+10	346.6523	202752.	0.00
13.2000	-0.00760	74212.	-10802.	1.28E-04	0.00	8.13E+10	331.1073	209088.	0.00
13.6000	-0.00697	26174.	-9257.	1.31E-04	0.00	8.13E+10	313.0201	215424.	0.00
14.0000	-0.00634	-14651.	-7802.	1.32E-04	0.00	8.13E+10	292.9361	221760.	0.00
14.4000	-0.00571	-48727.	-6448.	1.30E-04	0.00	8.13E+10	271.3757	228096.	0.00
14.8000	-0.00509	-76551.	-5199.	1.26E-04	0.00	8.13E+10	248.8267	234432.	0.00
15.2000	-0.00450	-98641.	-4060.	1.21E-04	0.00	8.13E+10	225.7392	240768.	0.00
15.6000	-0.00393	-115531.	-3033.	1.15E-04	0.00	8.13E+10	202.5213	247104.	0.00
16.0000	-0.00340	-127755.	-2116.	1.07E-04	0.00	8.12E+10	179.5373	253440.	0.00
16.4000	-0.00290	-135842.	-1308.	9.96E-05	0.00	8.12E+10	157.1052	259776.	0.00
16.8000	-0.00244	-140309.	-605.5008	9.15E-05	0.00	8.12E+10	135.4960	266112.	0.00
17.2000	-0.00202	-141654.	-4.4677	8.31E-05	0.00	8.12E+10	114.9345	272448.	0.00
17.6000	-0.00165	-140352.	500.8160	7.48E-05	0.00	8.12E+10	95.6004	278784.	0.00
18.0000	-0.00131	-136847.	916.5715	6.66E-05	0.00	8.12E+10	77.6310	285120.	0.00
18.4000	-0.00101	-131553.	1250.	5.87E-05	0.00	8.12E+10	61.1234	291456.	0.00
18.8000	-7.44E-04	-124851.	1507.	5.11E-05	0.00	8.13E+10	46.1376	297792.	0.00
19.2000	-5.16E-04	-117085.	1696.	4.40E-05	0.00	8.13E+10	32.7008	304128.	0.00
19.6000	-3.22E-04	-108567.	1825.	3.73E-05	0.00	8.13E+10	20.8100	310464.	0.00
20.0000	-1.58E-04	-99569.	1900.	3.11E-05	0.00	8.13E+10	10.4367	316800.	0.00
20.4000	-2.27E-05	-90330.	1928.	2.55E-05	0.00	8.13E+10	1.5306	323136.	0.00
20.8000	8.71E-05	-81057.	1918.	2.05E-05	0.00	8.13E+10	-5.9763	329472.	0.00
21.2000	1.74E-04	-71921.	1874.	1.60E-05	0.00	8.13E+10	-12.1665	335808.	0.00
21.6000	2.40E-04	-63065.	1804.	1.20E-05	0.00	8.13E+10	-17.1336	342144.	0.00
22.0000	2.89E-04	-54604.	1712.	8.51E-06	0.00	8.13E+10	-20.9789	348480.	0.00
22.4000	3.22E-04	-46626.	1605.	5.53E-06	0.00	8.13E+10	-23.8090	354816.	0.00
22.8000	3.42E-04	-39197.	1486.	2.99E-06	0.00	8.13E+10	-25.7326	361152.	0.00
23.2000	3.51E-04	-32361.	1360.	8.81E-07	0.00	8.13E+10	-26.8586	367488.	0.00
23.6000	3.50E-04	-26144.	1230.	-8.46E-07	0.00	8.13E+10	-27.2939	373824.	0.00
24.0000	3.43E-04	-20555.	1099.	-2.22E-06	0.00	8.13E+10	-27.1415	380160.	0.00
24.4000	3.29E-04	-15592.	970.3972	-3.29E-06	0.00	8.13E+10	-26.4998	386496.	0.00
24.8000	3.11E-04	-11239.	845.6924	-4.08E-06	0.00	8.13E+10	-25.4606	392832.	0.00
25.2000	2.90E-04	-7473.	726.7251	-4.64E-06	0.00	8.13E+10	-24.1091	399168.	0.00

25.6000	2.67E-04	-4263.	614.8084	-4.98E-06	0.00	8.13E+10	-22.5228	405504.	0.00
26.0000	2.42E-04	-1571.	510.9024	-5.15E-06	0.00	8.13E+10	-20.7714	411840.	0.00
26.4000	2.17E-04	642.0297	415.6516	-5.18E-06	0.00	8.13E+10	-18.9164	418176.	0.00
26.8000	1.92E-04	2419.	329.4241	-5.09E-06	0.00	8.13E+10	-17.0117	424512.	0.00
27.2000	1.68E-04	3805.	252.3487	-4.91E-06	0.00	8.13E+10	-15.1031	430848.	0.00
27.6000	1.45E-04	4842.	184.3519	-4.65E-06	0.00	8.13E+10	-13.2290	437184.	0.00
28.0000	1.24E-04	5574.	125.1921	-4.34E-06	0.00	8.13E+10	-11.4209	443520.	0.00
28.4000	1.04E-04	6044.	74.4931	-4.00E-06	0.00	8.13E+10	-9.7037	449856.	0.00
28.8000	8.52E-05	6289.	31.7731	-3.64E-06	0.00	8.13E+10	-8.0963	456192.	0.00
29.2000	6.86E-05	6349.	-3.5269	-3.26E-06	0.00	8.13E+10	-6.6121	462528.	0.00
29.6000	5.38E-05	6256.	-32.0195	-2.89E-06	0.00	8.13E+10	-5.2598	468864.	0.00
30.0000	4.08E-05	6041.	-54.3489	-2.53E-06	0.00	8.13E+10	-4.0441	475200.	0.00
30.4000	2.96E-05	5734.	-71.1723	-2.18E-06	0.00	8.13E+10	-2.9657	481536.	0.00
30.8000	1.99E-05	5358.	-83.1443	-1.85E-06	0.00	8.13E+10	-2.0226	487872.	0.00
31.2000	1.18E-05	4936.	-90.9035	-1.55E-06	0.00	8.13E+10	-1.2103	494208.	0.00
31.6000	5.01E-06	4485.	-95.0620	-1.27E-06	0.00	8.13E+10	-0.5224	500544.	0.00
32.0000	-4.66E-07	4023.	-96.1977	-1.02E-06	0.00	8.13E+10	0.04919	506880.	0.00
32.4000	-4.80E-06	3562.	-94.8476	-7.98E-07	0.00	8.13E+10	0.5134	513216.	0.00
32.8000	-8.13E-06	3112.	-91.5041	-6.01E-07	0.00	8.13E+10	0.8797	519552.	0.00
33.2000	-1.06E-05	2683.	-86.6128	-4.30E-07	0.00	8.13E+10	1.1583	525888.	0.00
33.6000	-1.23E-05	2281.	-80.5712	-2.84E-07	0.00	8.13E+10	1.3590	532224.	0.00
34.0000	-1.33E-05	1910.	-73.7295	-1.60E-07	0.00	8.13E+10	1.4917	538560.	0.00
34.4000	-1.38E-05	1573.	-66.3920	-5.71E-08	0.00	8.13E+10	1.5656	544896.	0.00
34.8000	-1.38E-05	1273.	-58.8191	2.69E-08	0.00	8.13E+10	1.5897	551232.	0.00
35.2000	-1.35E-05	1009.	-51.2308	9.42E-08	0.00	8.13E+10	1.5721	557568.	0.00
35.6000	-1.29E-05	780.7405	-43.8098	1.47E-07	0.00	8.13E+10	1.5200	563904.	0.00
36.0000	-1.21E-05	587.9645	-36.7053	1.87E-07	0.00	8.13E+10	1.4401	570240.	0.00
36.4000	-1.11E-05	428.3695	-30.0375	2.17E-07	0.00	8.13E+10	1.3381	576576.	0.00
36.8000	-1.00E-05	299.6044	-23.9012	2.39E-07	0.00	8.13E+10	1.2187	582912.	0.00
37.2000	-8.85E-06	198.9184	-18.3699	2.54E-07	0.00	8.13E+10	1.0860	589248.	0.00
37.6000	-7.60E-06	123.2537	-13.4999	2.63E-07	0.00	8.13E+10	0.9431	595584.	0.00
38.0000	-6.32E-06	69.3191	-9.3341	2.69E-07	0.00	8.13E+10	0.7926	601920.	0.00
38.4000	-5.02E-06	33.6466	-5.9048	2.72E-07	0.00	8.13E+10	0.6362	608256.	0.00
38.8000	-3.71E-06	12.6331	-3.2373	2.73E-07	0.00	8.13E+10	0.4752	614592.	0.00
39.2000	-2.40E-06	2.5683	-1.3523	2.74E-07	0.00	8.13E+10	0.3102	620928.	0.00
39.6000	-1.08E-06	-0.3485	-0.2675	2.74E-07	0.00	8.13E+10	0.1417	627264.	0.00
40.0000	2.29E-07	0.00	0.00	2.74E-07	0.00	8.13E+10	-0.03025	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 3:

```
Pile-head deflection              =     0.75000000 inches
Computed slope at pile head       =    -0.01105348 radians
Maximum bending moment            =       1815654. inch-lbs
Maximum shear force               =         39580. lbs
Depth of maximum bending moment   =     5.60000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =            17
Number of zero deflection points =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 4

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                            =     1.000000 inches
Moment at pile head                                  =          0.0 in-lbs
Axial load at pile head                              =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	0.00	44831.	-0.01421	0.00	8.13E+10	0.00	0.00	0.00
0.4000	0.9318	215187.	44673.	-0.01421	0.00	8.13E+10	-65.6146	338.0109	0.00
0.8000	0.8636	428862.	44178.	-0.01419	0.00	8.07E+10	-140.8493	782.8488	0.00
1.2000	0.7956	639292.	43313.	-0.01416	0.00	8.03E+10	-219.3973	1324.	0.00
1.6000	0.7277	844667.	42070.	-0.01399	0.00	1.34E+10	-298.6689	1970.	0.00
2.0000	0.6613	1043160.	40441.	-0.01365	0.00	1.34E+10	-380.0252	2758.	0.00
2.4000	0.5967	1232898.	38409.	-0.01324	0.00	1.34E+10	-466.7070	3754.	0.00
2.8000	0.5342	1411883.	35941.	-0.01277	0.00	1.33E+10	-561.3975	5045.	0.00
3.2000	0.4741	1577933.	32988.	-0.01223	0.00	1.33E+10	-669.1650	6774.	0.00
3.6000	0.4168	1728566.	29478.	-0.01163	0.00	1.32E+10	-793.3725	9136.	0.00
4.0000	0.3625	1860919.	25382.	-0.01098	0.00	1.32E+10	-913.1783	12091.	0.00
4.4000	0.3115	1972233.	20758.	-0.01027	0.00	1.29E+10	-1014.	15619.	0.00
4.8000	0.2639	2060196.	15690.	-0.00951	0.00	1.26E+10	-1098.	19967.	0.00
5.2000	0.2202	2122861.	10255.	-0.00870	0.00	1.22E+10	-1167.	25436.	0.00
5.6000	0.1805	2158643.	4530.	-0.00783	0.00	1.16E+10	-1219.	32412.	0.00
6.0000	0.1450	2166347.	-1380.	-0.00694	0.00	1.15E+10	-1244.	41176.	0.00
6.4000	0.1139	2145391.	-7403.	-0.00605	0.00	1.19E+10	-1265.	53331.	0.00
6.8000	0.08693	2095281.	-13468.	-0.00521	0.00	1.25E+10	-1262.	69672.	0.00
7.2000	0.06384	2016101.	-19443.	-0.00443	0.00	1.27E+10	-1228.	92341.	0.00
7.6000	0.04440	1908624.	-25064.	-0.00370	0.00	1.30E+10	-1114.	120384.	0.00
8.0000	0.02833	1775490.	-29531.	-0.00303	0.00	1.32E+10	-747.9892	126720.	0.00
8.4000	0.01536	1625122.	-32348.	-0.00241	0.00	1.33E+10	-425.6528	133056.	0.00
8.8000	0.00520	1464947.	-33732.	-0.00185	0.00	1.33E+10	-150.9920	139392.	0.00

9.2000	-0.00242	1301293.	-33918.	-0.00135	0.00	1.33E+10	73.4867	145728.	0.00
9.6000	-0.00779	1139333.	-33149.	-9.15E-04	0.00	1.34E+10	246.9211	152064.	0.00
10.0000	-0.01121	983061.	-31669.	-5.35E-04	0.00	1.34E+10	369.8211	158400.	0.00
10.4000	-0.01293	835311.	-29716.	-2.10E-04	0.00	1.35E+10	443.8032	164736.	0.00
10.8000	-0.01323	697785.	-27520.	-3.68E-06	0.00	2.91E+10	471.3468	171072.	0.00
11.2000	-0.01297	571119.	-25239.	7.09E-05	0.00	8.05E+10	479.2481	177408.	0.00
11.6000	-0.01254	455495.	-22936.	1.01E-04	0.00	8.07E+10	480.2058	183744.	0.00
12.0000	-0.01199	350935.	-20644.	1.25E-04	0.00	8.09E+10	474.8970	190080.	0.00
12.4000	-0.01134	257317.	-18390.	1.44E-04	0.00	8.10E+10	464.0383	196416.	0.00
12.8000	-0.01061	174390.	-16200.	1.56E-04	0.00	8.12E+10	448.3668	202752.	0.00
13.2000	-0.00984	101793.	-14096.	1.64E-04	0.00	8.13E+10	428.6240	209088.	0.00
13.6000	-0.00904	39072.	-12094.	1.69E-04	0.00	8.13E+10	405.5412	215424.	0.00
14.0000	-0.00822	-14305.	-10209.	1.69E-04	0.00	8.13E+10	379.8252	221760.	0.00
14.4000	-0.00741	-58931.	-8452.	1.67E-04	0.00	8.13E+10	352.1506	228096.	0.00
14.8000	-0.00662	-95444.	-6831.	1.63E-04	0.00	8.13E+10	323.1511	234432.	0.00
15.2000	-0.00585	-124511.	-5351.	1.56E-04	0.00	8.13E+10	293.4117	240768.	0.00
15.6000	-0.00512	-146818.	-4015.	1.48E-04	0.00	8.12E+10	263.4649	247104.	0.00
16.0000	-0.00443	-163055.	-2822.	1.39E-04	0.00	8.12E+10	233.7858	253440.	0.00
16.4000	-0.00378	-173905.	-1769.	1.29E-04	0.00	8.12E+10	204.7893	259776.	0.00
16.8000	-0.00319	-180037.	-853.1163	1.19E-04	0.00	8.12E+10	176.8300	266112.	0.00
17.2000	-0.00265	-182095.	-68.2383	1.08E-04	0.00	8.12E+10	150.2024	272448.	0.00
17.6000	-0.00215	-180692.	592.5906	9.71E-05	0.00	8.12E+10	125.1429	278784.	0.00
18.0000	-0.00171	-176406.	1137.	8.65E-05	0.00	8.12E+10	101.8325	285120.	0.00
18.4000	-0.00132	-169774.	1575.	7.63E-05	0.00	8.12E+10	80.4003	291456.	0.00
18.8000	-9.82E-04	-161289.	1914.	6.65E-05	0.00	8.12E+10	60.9274	297792.	0.00
19.2000	-6.86E-04	-151401.	2164.	5.72E-05	0.00	8.12E+10	43.4516	304128.	0.00
19.6000	-4.32E-04	-140511.	2336.	4.86E-05	0.00	8.12E+10	27.9723	310464.	0.00
20.0000	-2.19E-04	-128977.	2438.	4.07E-05	0.00	8.12E+10	14.4549	316800.	0.00
20.4000	-4.21E-05	-117110.	2479.	3.34E-05	0.00	8.13E+10	2.8363	323136.	0.00
20.8000	1.02E-04	-105178.	2469.	2.68E-05	0.00	8.13E+10	-6.9705	329472.	0.00
21.2000	2.15E-04	-93406.	2416.	2.10E-05	0.00	8.13E+10	-15.0716	335808.	0.00
21.6000	3.03E-04	-81981.	2328.	1.58E-05	0.00	8.13E+10	-21.5870	342144.	0.00
22.0000	3.67E-04	-71054.	2213.	1.13E-05	0.00	8.13E+10	-26.6470	348480.	0.00
22.4000	4.11E-04	-60740.	2076.	7.39E-06	0.00	8.13E+10	-30.3883	354816.	0.00
22.8000	4.38E-04	-51127.	1924.	4.09E-06	0.00	8.13E+10	-32.9512	361152.	0.00
23.2000	4.50E-04	-42273.	1762.	1.33E-06	0.00	8.13E+10	-34.4760	367488.	0.00
23.6000	4.51E-04	-34214.	1595.	-9.29E-07	0.00	8.13E+10	-35.1007	373824.	0.00
24.0000	4.41E-04	-26963.	1427.	-2.73E-06	0.00	8.13E+10	-34.9587	380160.	0.00
24.4000	4.24E-04	-20517.	1261.	-4.14E-06	0.00	8.13E+10	-34.1771	386496.	0.00
24.8000	4.02E-04	-14859.	1100.	-5.18E-06	0.00	8.13E+10	-32.8750	392832.	0.00
25.2000	3.75E-04	-9958.	946.1693	-5.91E-06	0.00	8.13E+10	-31.1628	399168.	0.00
25.6000	3.45E-04	-5776.	801.4403	-6.38E-06	0.00	8.13E+10	-29.1410	405504.	0.00
26.0000	3.14E-04	-2265.	666.9415	-6.61E-06	0.00	8.13E+10	-26.9002	411840.	0.00
26.4000	2.81E-04	626.7657	543.5320	-6.66E-06	0.00	8.13E+10	-24.5205	418176.	0.00
26.8000	2.50E-04	2953.	431.7105	-6.56E-06	0.00	8.13E+10	-22.0718	424512.	0.00
27.2000	2.19E-04	4771.	331.6642	-6.33E-06	0.00	8.13E+10	-19.6141	430848.	0.00
27.6000	1.89E-04	6137.	243.3161	-6.01E-06	0.00	8.13E+10	-17.1976	437184.	0.00
28.0000	1.61E-04	7107.	166.3702	-5.62E-06	0.00	8.13E+10	-14.8632	443520.	0.00

28.4000	1.35E-04	7734.	100.3533	-5.18E-06	0.00	8.13E+10	-12.6438	449856.	0.00
28.8000	1.11E-04	8070.	44.6542	-4.71E-06	0.00	8.13E+10	-10.5642	456192.	0.00
29.2000	8.97E-05	8163.	-1.4409	-4.23E-06	0.00	8.13E+10	-8.6421	462528.	0.00
29.6000	7.05E-05	8057.	-38.7161	-3.75E-06	0.00	8.13E+10	-6.8893	468864.	0.00
30.0000	5.37E-05	7791.	-67.9988	-3.29E-06	0.00	8.13E+10	-5.3118	475200.	0.00
30.4000	3.90E-05	7404.	-90.1344	-2.84E-06	0.00	8.13E+10	-3.9113	481536.	0.00
30.8000	2.64E-05	6926.	-105.9662	-2.41E-06	0.00	8.13E+10	-2.6853	487872.	0.00
31.2000	1.58E-05	6387.	-116.3182	-2.02E-06	0.00	8.13E+10	-1.6281	494208.	0.00
31.6000	7.02E-06	5809.	-121.9814	-1.66E-06	0.00	8.13E+10	-0.7316	500544.	0.00
32.0000	-1.36E-07	5215.	-123.7027	-1.34E-06	0.00	8.13E+10	0.01436	506880.	0.00
32.4000	-5.81E-06	4622.	-122.1774	-1.05E-06	0.00	8.13E+10	0.6212	513216.	0.00
32.8000	-1.02E-05	4043.	-118.0436	-7.90E-07	0.00	8.13E+10	1.1012	519552.	0.00
33.2000	-1.34E-05	3489.	-111.8790	-5.68E-07	0.00	8.13E+10	1.4673	525888.	0.00
33.6000	-1.56E-05	2969.	-104.1998	-3.77E-07	0.00	8.13E+10	1.7323	532224.	0.00
34.0000	-1.70E-05	2488.	-95.4609	-2.16E-07	0.00	8.13E+10	1.9089	538560.	0.00
34.4000	-1.77E-05	2052.	-86.0578	-8.21E-08	0.00	8.13E+10	2.0090	544896.	0.00
34.8000	-1.78E-05	1662.	-76.3299	2.76E-08	0.00	8.13E+10	2.0443	551232.	0.00
35.2000	-1.74E-05	1319.	-66.5636	1.16E-07	0.00	8.13E+10	2.0250	557568.	0.00
35.6000	-1.67E-05	1023.	-56.9973	1.85E-07	0.00	8.13E+10	1.9609	563904.	0.00
36.0000	-1.57E-05	772.1870	-47.8261	2.38E-07	0.00	8.13E+10	1.8604	570240.	0.00
36.4000	-1.44E-05	564.0537	-39.2069	2.77E-07	0.00	8.13E+10	1.7309	576576.	0.00
36.8000	-1.30E-05	395.8007	-31.2638	3.05E-07	0.00	8.13E+10	1.5787	582912.	0.00
37.2000	-1.15E-05	263.9212	-24.0933	3.25E-07	0.00	8.13E+10	1.4090	589248.	0.00
37.6000	-9.88E-06	164.5051	-17.7693	3.38E-07	0.00	8.13E+10	1.2260	595584.	0.00
38.0000	-8.24E-06	93.3362	-12.3478	3.45E-07	0.00	8.13E+10	1.0330	601920.	0.00
38.4000	-6.57E-06	45.9665	-7.8714	3.49E-07	0.00	8.13E+10	0.8322	608256.	0.00
38.8000	-4.88E-06	17.7708	-4.3732	3.51E-07	0.00	8.13E+10	0.6254	614592.	0.00
39.2000	-3.20E-06	3.9839	-1.8800	3.52E-07	0.00	8.13E+10	0.4135	620928.	0.00
39.6000	-1.51E-06	-0.2768	-0.4150	3.52E-07	0.00	8.13E+10	0.1969	627264.	0.00
40.0000	1.82E-07	0.00	0.00	3.52E-07	0.00	8.13E+10	-0.02403	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 4:

```
Pile-head deflection            =     1.00000000 inches
Computed slope at pile head     =    -0.01421359 radians
Maximum bending moment          =       2166347. inch-lbs
Maximum shear force             =         44831. lbs
Depth of maximum bending moment =     6.00000000 feet below pile head
Depth of maximum shear force    =       0.000000 feet below pile head
Number of iterations            =             41
```

Number of zero deflection points = 4

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 5

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.250000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	0.00	47693.	-0.01745	0.00	8.13E+10	0.00	0.00	0.00
0.4000	1.1662	228927.	47536.	-0.01744	0.00	8.13E+10	-65.6148	270.0582	0.00
0.8000	1.0825	456343.	47042.	-0.01742	0.00	8.07E+10	-139.9996	620.7651	0.00
1.2000	0.9990	680533.	46178.	-0.01739	0.00	8.02E+10	-220.2191	1058.	0.00
1.6000	0.9156	899649.	44922.	-0.01721	0.00	1.34E+10	-303.1903	1589.	0.00
2.0000	0.8338	1111779.	43271.	-0.01685	0.00	1.34E+10	-384.6442	2214.	0.00
2.4000	0.7538	1315048.	41225.	-0.01641	0.00	1.33E+10	-467.9438	2980.	0.00
2.8000	0.6762	1507534.	38767.	-0.01591	0.00	1.33E+10	-556.0324	3947.	0.00
3.2000	0.6011	1687210.	35859.	-0.01533	0.00	1.33E+10	-655.8228	5237.	0.00
3.6000	0.5290	1851776.	32432.	-0.01469	0.00	1.32E+10	-771.7262	7002.	0.00
4.0000	0.4602	1998561.	28404.	-0.01397	0.00	1.28E+10	-906.5845	9457.	0.00
4.4000	0.3949	2124459.	23697.	-0.01318	0.00	1.21E+10	-1055.	12822.	0.00
4.8000	0.3337	2226052.	18402.	-0.01226	0.00	1.07E+10	-1152.	16565.	0.00
5.2000	0.2772	2301114.	12683.	-0.01119	0.00	9.79E+09	-1231.	21320.	0.00
5.6000	0.2262	2347806.	6627.	-0.01002	0.00	9.33E+09	-1292.	27416.	0.00
6.0000	0.1810	2364730.	345.0444	-0.00880	0.00	9.17E+09	-1325.	35149.	0.00
6.4000	0.1417	2351119.	-6076.	-0.00758	0.00	9.30E+09	-1350.	45733.	0.00
6.8000	0.1083	2306400.	-12557.	-0.00640	0.00	9.74E+09	-1350.	59866.	0.00
7.2000	0.08025	2230575.	-18969.	-0.00533	0.00	1.06E+10	-1322.	79056.	0.00
7.6000	0.05710	2124295.	-25167.	-0.00440	0.00	1.22E+10	-1261.	105973.	0.00
8.0000	0.03797	1988972.	-30598.	-0.00361	0.00	1.28E+10	-1002.	126720.	0.00
8.4000	0.02242	1830554.	-34495.	-0.00291	0.00	1.32E+10	-621.4811	133056.	0.00
8.8000	0.01006	1657817.	-36688.	-0.00227	0.00	1.33E+10	-292.1997	139392.	0.00
9.2000	5.84E-04	1478348.	-37432.	-0.00171	0.00	1.33E+10	-17.7300	145728.	0.00
9.6000	-0.00633	1298470.	-36993.	-0.00121	0.00	1.33E+10	200.6658	152064.	0.00
10.0000	-0.01101	1123216.	-35639.	-7.73E-04	0.00	1.34E+10	363.3637	158400.	0.00
10.4000	-0.01375	956333.	-33634.	-4.01E-04	0.00	1.34E+10	472.0690	164736.	0.00
10.8000	-0.01486	800327.	-31230.	-8.70E-05	0.00	1.35E+10	529.5246	171072.	0.00
11.2000	-0.01459	656521.	-28665.	7.53E-05	0.00	8.03E+10	539.2538	177408.	0.00
11.6000	-0.01413	525140.	-26073.	1.11E-04	0.00	8.05E+10	541.0656	183744.	0.00

12.0000	-0.01353	406225.	-23488.	1.38E-04	0.00	8.08E+10	535.7249	190080.	0.00
12.4000	-0.01281	299653.	-20945.	1.59E-04	0.00	8.10E+10	524.0423	196416.	0.00
12.8000	-0.01200	205154.	-18471.	1.74E-04	0.00	8.11E+10	506.8516	202752.	0.00
13.2000	-0.01113	122334.	-16090.	1.84E-04	0.00	8.13E+10	484.9923	209088.	0.00
13.6000	-0.01023	50688.	-13824.	1.89E-04	0.00	8.13E+10	459.2914	215424.	0.00
14.0000	-0.00932	-10376.	-11688.	1.90E-04	0.00	8.13E+10	430.5508	221760.	0.00
14.4000	-0.00841	-61520.	-9696.	1.88E-04	0.00	8.13E+10	399.5356	228096.	0.00
14.8000	-0.00751	-103459.	-7857.	1.83E-04	0.00	8.13E+10	366.9652	234432.	0.00
15.2000	-0.00665	-136943.	-6175.	1.76E-04	0.00	8.12E+10	333.5047	240768.	0.00
15.6000	-0.00582	-162743.	-4656.	1.67E-04	0.00	8.12E+10	299.7608	247104.	0.00
16.0000	-0.00504	-181637.	-3297.	1.57E-04	0.00	8.12E+10	266.2751	253440.	0.00
16.4000	-0.00431	-194395.	-2098.	1.46E-04	0.00	8.11E+10	233.5214	259776.	0.00
16.8000	-0.00364	-201774.	-1053.	1.34E-04	0.00	8.11E+10	201.9052	266112.	0.00
17.2000	-0.00303	-204500.	-155.7561	1.22E-04	0.00	8.11E+10	171.7644	272448.	0.00
17.6000	-0.00247	-203269.	600.5688	1.10E-04	0.00	8.11E+10	143.3710	278784.	0.00
18.0000	-0.00197	-198735.	1225.	9.83E-05	0.00	8.11E+10	116.9340	285120.	0.00
18.4000	-0.00153	-191506.	1728.	8.67E-05	0.00	8.11E+10	92.6036	291456.	0.00
18.8000	-0.00114	-182144.	2120.	7.57E-05	0.00	8.12E+10	70.4758	297792.	0.00
19.2000	-7.99E-04	-171158.	2410.	6.52E-05	0.00	8.12E+10	50.5969	304128.	0.00
19.6000	-5.10E-04	-159006.	2611.	5.55E-05	0.00	8.12E+10	32.9695	310464.	0.00
20.0000	-2.66E-04	-146095.	2732.	4.65E-05	0.00	8.12E+10	17.5577	316800.	0.00
20.4000	-6.38E-05	-132779.	2784.	3.82E-05	0.00	8.12E+10	4.2928	323136.	0.00
20.8000	1.01E-04	-119365.	2778.	3.08E-05	0.00	8.13E+10	-6.9211	329472.	0.00
21.2000	2.32E-04	-106109.	2723.	2.41E-05	0.00	8.13E+10	-16.2021	335808.	0.00
21.6000	3.32E-04	-93228.	2627.	1.82E-05	0.00	8.13E+10	-23.6850	342144.	0.00
22.0000	4.07E-04	-80891.	2499.	1.31E-05	0.00	8.13E+10	-29.5162	348480.	0.00
22.4000	4.58E-04	-69235.	2347.	8.66E-06	0.00	8.13E+10	-33.8493	354816.	0.00
22.8000	4.90E-04	-58359.	2177.	4.89E-06	0.00	8.13E+10	-36.8422	361152.	0.00
23.2000	5.05E-04	-48332.	1996.	1.74E-06	0.00	8.13E+10	-38.6531	367488.	0.00
23.6000	5.06E-04	-39195.	1809.	-8.41E-07	0.00	8.13E+10	-39.4377	373824.	0.00
24.0000	4.97E-04	-30966.	1620.	-2.91E-06	0.00	8.13E+10	-39.3468	380160.	0.00
24.4000	4.78E-04	-23645.	1433.	-4.52E-06	0.00	8.13E+10	-38.5242	386496.	0.00
24.8000	4.53E-04	-17211.	1251.	-5.73E-06	0.00	8.13E+10	-37.1049	392832.	0.00
25.2000	4.23E-04	-11632.	1078.	-6.58E-06	0.00	8.13E+10	-35.2140	399168.	0.00
25.6000	3.90E-04	-6864.	914.1824	-7.13E-06	0.00	8.13E+10	-32.9656	405504.	0.00
26.0000	3.55E-04	-2855.	761.9549	-7.41E-06	0.00	8.13E+10	-30.4626	411840.	0.00
26.4000	3.19E-04	451.0745	622.1335	-7.48E-06	0.00	8.13E+10	-27.7963	418176.	0.00
26.8000	2.83E-04	3117.	495.3113	-7.38E-06	0.00	8.13E+10	-25.0463	424512.	0.00
27.2000	2.48E-04	5206.	381.7261	-7.13E-06	0.00	8.13E+10	-22.2809	430848.	0.00
27.6000	2.15E-04	6782.	281.3139	-6.78E-06	0.00	8.13E+10	-19.5575	437184.	0.00
28.0000	1.83E-04	7907.	193.7601	-6.35E-06	0.00	8.13E+10	-16.9232	443520.	0.00
28.4000	1.54E-04	8642.	118.5472	-5.86E-06	0.00	8.13E+10	-14.4155	449856.	0.00
28.8000	1.27E-04	9045.	54.9986	-5.33E-06	0.00	8.13E+10	-12.0630	456192.	0.00
29.2000	1.03E-04	9170.	2.3197	-4.80E-06	0.00	8.13E+10	-9.8865	462528.	0.00
29.6000	8.09E-05	9067.	-40.3668	-4.26E-06	0.00	8.13E+10	-7.8995	468864.	0.00
30.0000	6.17E-05	8782.	-73.9884	-3.73E-06	0.00	8.13E+10	-6.1095	475200.	0.00
30.4000	4.50E-05	8357.	-99.4955	-3.23E-06	0.00	8.13E+10	-4.5185	481536.	0.00
30.8000	3.07E-05	7827.	-117.8377	-2.75E-06	0.00	8.13E+10	-3.1241	487872.	0.00

31.2000	1.87E-05	7225.	-129.9442	-2.30E-06	0.00	8.13E+10	-1.9203	494208.	0.00
31.6000	8.61E-06	6580.	-136.7082	-1.90E-06	0.00	8.13E+10	-0.8980	500544.	0.00
32.0000	4.37E-07	5913.	-138.9741	-1.53E-06	0.00	8.13E+10	-0.04611	506880.	0.00
32.4000	-6.06E-06	5245.	-137.5289	-1.20E-06	0.00	8.13E+10	0.6483	513216.	0.00
32.8000	-1.11E-05	4593.	-133.0956	-9.09E-07	0.00	8.13E+10	1.1989	519552.	0.00
33.2000	-1.48E-05	3968.	-126.3294	-6.56E-07	0.00	8.13E+10	1.6203	525888.	0.00
33.6000	-1.74E-05	3380.	-117.8164	-4.39E-07	0.00	8.13E+10	1.9268	532224.	0.00
34.0000	-1.90E-05	2837.	-108.0736	-2.56E-07	0.00	8.13E+10	2.1327	538560.	0.00
34.4000	-1.98E-05	2343.	-97.5511	-1.03E-07	0.00	8.13E+10	2.2517	544896.	0.00
34.8000	-2.00E-05	1900.	-86.6352	2.21E-08	0.00	8.13E+10	2.2966	551232.	0.00
35.2000	-1.96E-05	1511.	-75.6527	1.23E-07	0.00	8.13E+10	2.2794	557568.	0.00
35.6000	-1.88E-05	1174.	-64.8756	2.02E-07	0.00	8.13E+10	2.2110	563904.	0.00
36.0000	-1.77E-05	888.0199	-54.5270	2.63E-07	0.00	8.13E+10	2.1009	570240.	0.00
36.4000	-1.63E-05	650.4927	-44.7865	3.08E-07	0.00	8.13E+10	1.9576	576576.	0.00
36.8000	-1.47E-05	458.0691	-35.7964	3.41E-07	0.00	8.13E+10	1.7883	582912.	0.00
37.2000	-1.30E-05	306.8474	-27.6673	3.64E-07	0.00	8.13E+10	1.5989	589248.	0.00
37.6000	-1.12E-05	192.4634	-20.4840	3.78E-07	0.00	8.13E+10	1.3942	595584.	0.00
38.0000	-9.39E-06	110.2009	-14.3111	3.87E-07	0.00	8.13E+10	1.1779	601920.	0.00
38.4000	-7.52E-06	55.0771	-9.1973	3.92E-07	0.00	8.13E+10	0.9528	608256.	0.00
38.8000	-5.63E-06	21.9064	-5.1807	3.94E-07	0.00	8.13E+10	0.7208	614592.	0.00
39.2000	-3.73E-06	5.3428	-2.2916	3.95E-07	0.00	8.13E+10	0.4830	620928.	0.00
39.6000	-1.84E-06	-0.09292	-0.5565	3.95E-07	0.00	8.13E+10	0.2400	627264.	0.00
40.0000	6.11E-08	0.00	0.00	3.95E-07	0.00	8.13E+10	-0.00807	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 5:

```
Pile-head deflection            =     1.25000000 inches
Computed slope at pile head     =    -0.01745137 radians
Maximum bending moment          =       2364730. inch-lbs
Maximum shear force             =         47693. lbs
Depth of maximum bending moment =     6.00000000 feet below pile head
Depth of maximum shear force    =       0.000000 feet below pile head
Number of iterations            =             61
Number of zero deflection points =             4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 6

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.500000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	0.00	49656.	-0.02081	0.00	8.13E+10	0.00	0.00	0.00
0.4000	1.4001	238350.	49499.	-0.02080	0.00	8.13E+10	-65.6146	224.9472	0.00
0.8000	1.3003	475188.	49005.	-0.02078	0.00	8.06E+10	-139.9989	516.8072	0.00
1.2000	1.2006	708801.	48141.	-0.02064	0.00	1.36E+10	-220.2174	880.4355	0.00
1.6000	1.1021	937340.	46885.	-0.02035	0.00	1.34E+10	-303.1878	1320.	0.00
2.0000	1.0052	1158893.	45230.	-0.01998	0.00	1.34E+10	-386.4136	1845.	0.00
2.4000	0.9103	1371544.	43176.	-0.01952	0.00	1.33E+10	-469.0834	2473.	0.00
2.8000	0.8178	1573387.	40729.	-0.01899	0.00	1.33E+10	-550.6647	3232.	0.00
3.2000	0.7280	1762542.	37865.	-0.01839	0.00	1.32E+10	-642.4704	4236.	0.00
3.6000	0.6413	1936895.	34523.	-0.01771	0.00	1.30E+10	-750.0368	5614.	0.00
4.0000	0.5580	2093967.	30621.	-0.01695	0.00	1.25E+10	-875.8291	7534.	0.00
4.4000	0.4786	2230860.	26066.	-0.01604	0.00	1.06E+10	-1022.	10251.	0.00
4.8000	0.4041	2344203.	20752.	-0.01493	0.00	9.36E+09	-1192.	14163.	0.00
5.2000	0.3353	2430077.	14801.	-0.01366	0.00	8.63E+09	-1287.	18429.	0.00
5.6000	0.2730	2486295.	8457.	-0.01225	0.00	8.14E+09	-1356.	23851.	0.00
6.0000	0.2177	2511263.	1849.	-0.01072	0.00	7.59E+09	-1397.	30805.	0.00
6.4000	0.1700	2504042.	-4924.	-0.00916	0.00	7.82E+09	-1425.	40226.	0.00
6.8000	0.1298	2463988.	-11771.	-0.00768	0.00	8.36E+09	-1428.	52804.	0.00
7.2000	0.09631	2391039.	-18561.	-0.00633	0.00	8.94E+09	-1401.	69842.	0.00
7.6000	0.06900	2285803.	-25147.	-0.00514	0.00	9.96E+09	-1343.	93414.	0.00
8.0000	0.04697	2149631.	-31345.	-0.00415	0.00	1.18E+10	-1240.	126720.	0.00
8.4000	0.02915	1984888.	-36261.	-0.00334	0.00	1.28E+10	-808.0190	133056.	0.00
8.8000	0.01489	1801529.	-39238.	-0.00264	0.00	1.32E+10	-432.5506	139392.	0.00
9.2000	0.00378	1608204.	-40551.	-0.00203	0.00	1.33E+10	-114.7239	145728.	0.00
9.6000	-0.00455	1412235.	-40481.	-0.00148	0.00	1.33E+10	144.0229	152064.	0.00
10.0000	-0.01043	1219585.	-39310.	-0.00101	0.00	1.34E+10	344.1455	158400.	0.00
10.4000	-0.01421	1034863.	-37313.	-6.02E-04	0.00	1.34E+10	487.6490	164736.	0.00
10.8000	-0.01621	861378.	-34756.	-2.63E-04	0.00	1.34E+10	577.7534	171072.	0.00
11.2000	-0.01674	701203.	-31885.	6.98E-06	0.00	1.44E+10	618.5897	177408.	0.00
11.6000	-0.01614	555281.	-28917.	1.40E-04	0.00	8.05E+10	617.9848	183744.	0.00
12.0000	-0.01539	423597.	-25971.	1.69E-04	0.00	8.07E+10	609.5193	190080.	0.00
12.4000	-0.01452	305957.	-23083.	1.91E-04	0.00	8.09E+10	594.1216	196416.	0.00
12.8000	-0.01356	202005.	-20282.	2.06E-04	0.00	8.11E+10	572.7412	202752.	0.00
13.2000	-0.01254	111249.	-17596.	2.15E-04	0.00	8.13E+10	546.3282	209088.	0.00
13.6000	-0.01149	33081.	-15047.	2.19E-04	0.00	8.13E+10	515.8144	215424.	0.00
14.0000	-0.01044	-33203.	-12652.	2.19E-04	0.00	8.13E+10	482.0989	221760.	0.00
14.4000	-0.00939	-88380.	-10425.	2.16E-04	0.00	8.13E+10	446.0369	228096.	0.00

14.8000	-0.00836	-133280.	-8374.	2.09E-04	0.00	8.12E+10	408.4292	234432.	0.00
15.2000	-0.00738	-168769.	-6506.	2.00E-04	0.00	8.12E+10	370.0150	240768.	0.00
15.6000	-0.00644	-195734.	-4822.	1.90E-04	0.00	8.11E+10	331.4639	247104.	0.00
16.0000	-0.00556	-215061.	-3322.	1.77E-04	0.00	8.11E+10	293.3710	253440.	0.00
16.4000	-0.00473	-227629.	-2003.	1.64E-04	0.00	8.11E+10	256.2548	259776.	0.00
16.8000	-0.00398	-234294.	-859.0352	1.51E-04	0.00	8.11E+10	220.5565	266112.	0.00
17.2000	-0.00329	-235876.	118.2375	1.37E-04	0.00	8.11E+10	186.6404	272448.	0.00
17.6000	-0.00267	-233159.	937.6861	1.23E-04	0.00	8.11E+10	154.7965	278784.	0.00
18.0000	-0.00211	-226874.	1610.	1.09E-04	0.00	8.11E+10	125.2441	285120.	0.00
18.4000	-0.00162	-217705.	2146.	9.61E-05	0.00	8.11E+10	98.1366	291456.	0.00
18.8000	-0.00119	-206274.	2558.	8.36E-05	0.00	8.11E+10	73.5665	297792.	0.00
19.2000	-8.14E-04	-193148.	2858.	7.18E-05	0.00	8.11E+10	51.5718	304128.	0.00
19.6000	-4.97E-04	-178834.	3059.	6.08E-05	0.00	8.12E+10	32.1425	310464.	0.00
20.0000	-2.31E-04	-163779.	3173.	5.06E-05	0.00	8.12E+10	15.2268	316800.	0.00
20.4000	-1.10E-05	-148374.	3211.	4.14E-05	0.00	8.12E+10	0.7375	323136.	0.00
20.8000	1.67E-04	-132952.	3186.	3.31E-05	0.00	8.12E+10	-11.4425	329472.	0.00
21.2000	3.07E-04	-117793.	3107.	2.57E-05	0.00	8.13E+10	-21.4534	335808.	0.00
21.6000	4.13E-04	-103128.	2984.	1.92E-05	0.00	8.13E+10	-29.4536	342144.	0.00
22.0000	4.91E-04	-89142.	2828.	1.35E-05	0.00	8.13E+10	-35.6137	348480.	0.00
22.4000	5.43E-04	-75977.	2647.	8.61E-06	0.00	8.13E+10	-40.1110	354816.	0.00
22.8000	5.73E-04	-63736.	2447.	4.48E-06	0.00	8.13E+10	-43.1263	361152.	0.00
23.2000	5.86E-04	-52488.	2236.	1.05E-06	0.00	8.13E+10	-44.8398	367488.	0.00
23.6000	5.83E-04	-42274.	2019.	-1.74E-06	0.00	8.13E+10	-45.4282	373824.	0.00
24.0000	5.69E-04	-33106.	1802.	-3.97E-06	0.00	8.13E+10	-45.0617	380160.	0.00
24.4000	5.45E-04	-24977.	1588.	-5.68E-06	0.00	8.13E+10	-43.9021	386496.	0.00
24.8000	5.14E-04	-17859.	1382.	-6.94E-06	0.00	8.13E+10	-42.1007	392832.	0.00
25.2000	4.79E-04	-11710.	1185.	-7.82E-06	0.00	8.13E+10	-39.7973	399168.	0.00
25.6000	4.39E-04	-6479.	1001.	-8.35E-06	0.00	8.13E+10	-37.1188	405504.	0.00
26.0000	3.98E-04	-2103.	829.6157	-8.61E-06	0.00	8.13E+10	-34.1795	411840.	0.00
26.4000	3.57E-04	1485.	672.9931	-8.63E-06	0.00	8.13E+10	-31.0799	418176.	0.00
26.8000	3.16E-04	4357.	531.4228	-8.45E-06	0.00	8.13E+10	-27.9077	424512.	0.00
27.2000	2.76E-04	6587.	405.0742	-8.13E-06	0.00	8.13E+10	-24.7375	430848.	0.00
27.6000	2.38E-04	8246.	293.7877	-7.69E-06	0.00	8.13E+10	-21.6319	437184.	0.00
28.0000	2.02E-04	9407.	197.1317	-7.17E-06	0.00	8.13E+10	-18.6415	443520.	0.00
28.4000	1.69E-04	10138.	114.4567	-6.59E-06	0.00	8.13E+10	-15.8065	449856.	0.00
28.8000	1.38E-04	10506.	44.9442	-5.99E-06	0.00	8.13E+10	-13.1571	456192.	0.00
29.2000	1.11E-04	10570.	-12.3482	-5.36E-06	0.00	8.13E+10	-10.7147	462528.	0.00
29.6000	8.69E-05	10387.	-58.4467	-4.75E-06	0.00	8.13E+10	-8.4930	468864.	0.00
30.0000	6.56E-05	10009.	-94.4264	-4.14E-06	0.00	8.13E+10	-6.4986	475200.	0.00
30.4000	4.72E-05	9481.	-121.3807	-3.57E-06	0.00	8.13E+10	-4.7324	481536.	0.00
30.8000	3.14E-05	8844.	-140.3954	-3.03E-06	0.00	8.13E+10	-3.1904	487872.	0.00
31.2000	1.81E-05	8133.	-152.5278	-2.53E-06	0.00	8.13E+10	-1.8648	494208.	0.00
31.6000	7.14E-06	7379.	-158.7898	-2.07E-06	0.00	8.13E+10	-0.7444	500544.	0.00
32.0000	-1.74E-06	6609.	-160.1341	-1.66E-06	0.00	8.13E+10	0.1842	506880.	0.00
32.4000	-8.76E-06	5842.	-157.4452	-1.29E-06	0.00	8.13E+10	0.9361	513216.	0.00
32.8000	-1.41E-05	5097.	-151.5328	-9.65E-07	0.00	8.13E+10	1.5274	519552.	0.00
33.2000	-1.80E-05	4387.	-143.1283	-6.85E-07	0.00	8.13E+10	1.9745	525888.	0.00
33.6000	-2.07E-05	3723.	-132.8834	-4.46E-07	0.00	8.13E+10	2.2942	532224.	0.00

34.0000	-2.23E-05	3112.	-121.3713	-2.44E-07	0.00	8.13E+10	2.5025	538560.	0.00
34.4000	-2.30E-05	2558.	-109.0890	-7.70E-08	0.00	8.13E+10	2.6151	544896.	0.00
34.8000	-2.30E-05	2064.	-96.4616	5.94E-08	0.00	8.13E+10	2.6463	551232.	0.00
35.2000	-2.25E-05	1632.	-83.8472	1.68E-07	0.00	8.13E+10	2.6097	557568.	0.00
35.6000	-2.14E-05	1259.	-71.5428	2.54E-07	0.00	8.13E+10	2.5172	563904.	0.00
36.0000	-2.00E-05	945.0240	-59.7907	3.19E-07	0.00	8.13E+10	2.3795	570240.	0.00
36.4000	-1.84E-05	685.4407	-48.7854	3.67E-07	0.00	8.13E+10	2.2060	576576.	0.00
36.8000	-1.65E-05	476.6845	-38.6799	4.01E-07	0.00	8.13E+10	2.0046	582912.	0.00
37.2000	-1.45E-05	314.1137	-29.5930	4.25E-07	0.00	8.13E+10	1.7816	589248.	0.00
37.6000	-1.24E-05	192.5914	-21.6155	4.40E-07	0.00	8.13E+10	1.5424	595584.	0.00
38.0000	-1.03E-05	106.6053	-14.8159	4.48E-07	0.00	8.13E+10	1.2908	601920.	0.00
38.4000	-8.13E-06	50.3585	-9.2468	4.53E-07	0.00	8.13E+10	1.0297	608256.	0.00
38.8000	-5.94E-06	17.8361	-4.9489	4.55E-07	0.00	8.13E+10	0.7611	614592.	0.00
39.2000	-3.76E-06	2.8492	-1.9557	4.56E-07	0.00	8.13E+10	0.4861	620928.	0.00
39.6000	-1.57E-06	-0.9388	-0.2968	4.56E-07	0.00	8.13E+10	0.2052	627264.	0.00
40.0000	6.17E-07	0.00	0.00	4.56E-07	0.00	8.13E+10	-0.08149	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 6:

```
Pile-head deflection             =     1.50000000 inches
Computed slope at pile head      =    -0.02081104 radians
Maximum bending moment           =       2511263. inch-lbs
Maximum shear force              =         49656. lbs
Depth of maximum bending moment  =     6.00000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             38
Number of zero deflection points =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 7

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                        =     1.750000 inches
Moment at pile head                              =          0.0 in-lbs
Axial load at pile head                          =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	0.00	50369.	-0.02408	0.00	8.13E+10	0.00	0.00	0.00
0.4000	1.6344	241773.	50212.	-0.02407	0.00	8.13E+10	-65.6146	192.7000	0.00
0.8000	1.5189	482034.	49718.	-0.02405	0.00	8.06E+10	-139.9989	442.4273	0.00
1.2000	1.4035	719070.	48854.	-0.02391	0.00	1.35E+10	-220.2175	753.1510	0.00
1.6000	1.2893	951031.	47598.	-0.02361	0.00	1.34E+10	-303.1880	1129.	0.00
2.0000	1.1768	1176008.	45943.	-0.02323	0.00	1.34E+10	-386.4138	1576.	0.00
2.4000	1.0663	1392081.	43889.	-0.02277	0.00	1.33E+10	-469.0838	2112.	0.00
2.8000	0.9582	1597347.	41450.	-0.02223	0.00	1.33E+10	-547.5543	2743.	0.00
3.2000	0.8529	1789997.	38625.	-0.02162	0.00	1.32E+10	-629.3414	3542.	0.00
3.6000	0.7507	1968147.	35365.	-0.02093	0.00	1.29E+10	-728.9221	4661.	0.00
4.0000	0.6520	2129502.	31585.	-0.02014	0.00	1.21E+10	-846.3201	6231.	0.00
4.4000	0.5574	2271359.	27184.	-0.01917	0.00	1.01E+10	-987.0998	8501.	0.00
4.8000	0.4679	2390472.	22047.	-0.01799	0.00	8.95E+09	-1153.	11833.	0.00
5.2000	0.3846	2483010.	16089.	-0.01662	0.00	8.17E+09	-1329.	16588.	0.00
5.6000	0.3083	2544924.	9539.	-0.01492	0.00	6.29E+09	-1400.	21792.	0.00
6.0000	0.2413	2574588.	2727.	-0.01280	0.00	5.37E+09	-1439.	28618.	0.00
6.4000	0.1854	2571101.	-4235.	-0.01052	0.00	5.46E+09	-1462.	37853.	0.00
6.8000	0.1403	2533928.	-11254.	-0.00848	0.00	6.64E+09	-1463.	50032.	0.00
7.2000	0.1040	2463059.	-18212.	-0.00685	0.00	8.37E+09	-1436.	66286.	0.00
7.6000	0.07450	2359094.	-24966.	-0.00553	0.00	9.22E+09	-1378.	88758.	0.00
8.0000	0.05088	2223389.	-31350.	-0.00442	0.00	1.07E+10	-1282.	120980.	0.00
8.4000	0.03205	2058135.	-36560.	-0.00353	0.00	1.26E+10	-888.4097	133056.	0.00
8.8000	0.01698	1872413.	-39876.	-0.00280	0.00	1.32E+10	-493.1316	139392.	0.00
9.2000	0.00519	1675328.	-41438.	-0.00215	0.00	1.33E+10	-157.6660	145728.	0.00
9.6000	-0.00368	1474611.	-41536.	-0.00158	0.00	1.33E+10	116.6878	152064.	0.00
10.0000	-0.01001	1276583.	-40463.	-0.00109	0.00	1.34E+10	330.2201	158400.	0.00
10.4000	-0.01413	1086162.	-38507.	-6.64E-04	0.00	1.34E+10	484.8510	164736.	0.00
10.8000	-0.01638	906913.	-35943.	-3.07E-04	0.00	1.34E+10	583.7833	171072.	0.00
11.2000	-0.01708	741114.	-33027.	-1.33E-05	0.00	1.35E+10	631.1832	177408.	0.00
11.6000	-0.01651	589857.	-29995.	1.36E-04	0.00	8.04E+10	631.9043	183744.	0.00
12.0000	-0.01577	453160.	-26980.	1.67E-04	0.00	8.07E+10	624.4284	190080.	0.00
12.4000	-0.01490	330849.	-24018.	1.91E-04	0.00	8.09E+10	609.7051	196416.	0.00
12.8000	-0.01394	222586.	-21142.	2.07E-04	0.00	8.11E+10	588.7086	202752.	0.00
13.2000	-0.01291	127887.	-18379.	2.18E-04	0.00	8.12E+10	562.4157	209088.	0.00
13.6000	-0.01185	46146.	-15753.	2.23E-04	0.00	8.13E+10	531.7867	215424.	0.00
14.0000	-0.01077	-23343.	-13282.	2.23E-04	0.00	8.13E+10	497.7494	221760.	0.00
14.4000	-0.00971	-81364.	-10981.	2.20E-04	0.00	8.13E+10	461.1877	228096.	0.00
14.8000	-0.00866	-128758.	-8859.	2.14E-04	0.00	8.12E+10	422.9305	234432.	0.00
15.2000	-0.00765	-166409.	-6923.	2.05E-04	0.00	8.12E+10	383.7444	240768.	0.00
15.6000	-0.00669	-195218.	-5176.	1.95E-04	0.00	8.11E+10	344.3257	247104.	0.00
16.0000	-0.00578	-216094.	-3616.	1.82E-04	0.00	8.11E+10	305.2943	253440.	0.00
16.4000	-0.00494	-229936.	-2242.	1.69E-04	0.00	8.11E+10	267.1923	259776.	0.00
16.8000	-0.00416	-237621.	-1048.	1.55E-04	0.00	8.11E+10	230.4820	266112.	0.00
17.2000	-0.00345	-239997.	-25.5607	1.41E-04	0.00	8.11E+10	195.5470	272448.	0.00

17.6000	-0.00280	-237867.	834.2184	1.27E-04	0.00	8.11E+10	162.6943	278784.	0.00
18.0000	-0.00222	-231988.	1542.	1.13E-04	0.00	8.11E+10	132.1577	285120.	0.00
18.4000	-0.00171	-223065.	2109.	9.97E-05	0.00	8.11E+10	104.1031	291456.	0.00
18.8000	-0.00127	-211743.	2547.	8.69E-05	0.00	8.11E+10	78.6332	297792.	0.00
19.2000	-8.81E-04	-198609.	2870.	7.47E-05	0.00	8.11E+10	55.7938	304128.	0.00
19.6000	-5.50E-04	-184190.	3089.	6.34E-05	0.00	8.12E+10	35.5807	310464.	0.00
20.0000	-2.72E-04	-168951.	3218.	5.30E-05	0.00	8.12E+10	17.9463	316800.	0.00
20.4000	-4.17E-05	-153299.	3268.	4.34E-05	0.00	8.12E+10	2.8058	323136.	0.00
20.8000	1.45E-04	-137582.	3250.	3.48E-05	0.00	8.12E+10	-9.9569	329472.	0.00
21.2000	2.93E-04	-122094.	3177.	2.72E-05	0.00	8.13E+10	-20.4823	335808.	0.00
21.6000	4.06E-04	-107078.	3059.	2.04E-05	0.00	8.13E+10	-28.9301	342144.	0.00
22.0000	4.89E-04	-92729.	2904.	1.45E-05	0.00	8.13E+10	-35.4736	348480.	0.00
22.4000	5.45E-04	-79197.	2722.	9.43E-06	0.00	8.13E+10	-40.2934	354816.	0.00
22.8000	5.79E-04	-66594.	2521.	5.13E-06	0.00	8.13E+10	-43.5742	361152.	0.00
23.2000	5.94E-04	-54994.	2307.	1.54E-06	0.00	8.13E+10	-45.5004	367488.	0.00
23.6000	5.94E-04	-44443.	2087.	-1.40E-06	0.00	8.13E+10	-46.2532	373824.	0.00
24.0000	5.81E-04	-34957.	1866.	-3.74E-06	0.00	8.13E+10	-46.0077	380160.	0.00
24.4000	5.58E-04	-26532.	1647.	-5.55E-06	0.00	8.13E+10	-44.9304	386496.	0.00
24.8000	5.28E-04	-19142.	1436.	-6.90E-06	0.00	8.13E+10	-43.1775	392832.	0.00
25.2000	4.92E-04	-12746.	1234.	-7.84E-06	0.00	8.13E+10	-40.8933	399168.	0.00
25.6000	4.52E-04	-7293.	1044.	-8.43E-06	0.00	8.13E+10	-38.2094	405504.	0.00
26.0000	4.11E-04	-2720.	868.1222	-8.73E-06	0.00	8.13E+10	-35.2440	411840.	0.00
26.4000	3.68E-04	1041.	706.4919	-8.78E-06	0.00	8.13E+10	-32.1020	418176.	0.00
26.8000	3.26E-04	4063.	560.1488	-8.63E-06	0.00	8.13E+10	-28.8743	424512.	0.00
27.2000	2.86E-04	6419.	429.3166	-8.32E-06	0.00	8.13E+10	-25.6391	430848.	0.00
27.6000	2.47E-04	8184.	313.8745	-7.89E-06	0.00	8.13E+10	-22.4617	437184.	0.00
28.0000	2.10E-04	9432.	213.4170	-7.37E-06	0.00	8.13E+10	-19.3956	443520.	0.00
28.4000	1.76E-04	10233.	127.3086	-6.79E-06	0.00	8.13E+10	-16.4829	449856.	0.00
28.8000	1.45E-04	10654.	54.7352	-6.17E-06	0.00	8.13E+10	-13.7560	456192.	0.00
29.2000	1.17E-04	10758.	-5.2496	-5.54E-06	0.00	8.13E+10	-11.2377	462528.	0.00
29.6000	9.16E-05	10604.	-53.6830	-4.91E-06	0.00	8.13E+10	-8.9429	468864.	0.00
30.0000	6.95E-05	10243.	-91.6564	-4.29E-06	0.00	8.13E+10	-6.8793	475200.	0.00
30.4000	5.03E-05	9724.	-120.2835	-3.71E-06	0.00	8.13E+10	-5.0487	481536.	0.00
30.8000	3.39E-05	9088.	-140.6740	-3.15E-06	0.00	8.13E+10	-3.4474	487872.	0.00
31.2000	2.01E-05	8373.	-153.9107	-2.63E-06	0.00	8.13E+10	-2.0679	494208.	0.00
31.6000	8.62E-06	7611.	-161.0320	-2.16E-06	0.00	8.13E+10	-0.8993	500544.	0.00
32.0000	-6.81E-07	6827.	-163.0179	-1.74E-06	0.00	8.13E+10	0.07187	506880.	0.00
32.4000	-8.05E-06	6046.	-160.7794	-1.36E-06	0.00	8.13E+10	0.8608	513216.	0.00
32.8000	-1.37E-05	5284.	-155.1525	-1.02E-06	0.00	8.13E+10	1.4838	519552.	0.00
33.2000	-1.79E-05	4556.	-146.8930	-7.32E-07	0.00	8.13E+10	1.9577	525888.	0.00
33.6000	-2.07E-05	3874.	-136.6760	-4.83E-07	0.00	8.13E+10	2.2994	532224.	0.00
34.0000	-2.25E-05	3244.	-125.0959	-2.73E-07	0.00	8.13E+10	2.5256	538560.	0.00
34.4000	-2.34E-05	2673.	-112.6692	-9.88E-08	0.00	8.13E+10	2.6521	544896.	0.00
34.8000	-2.35E-05	2163.	-99.8385	4.39E-08	0.00	8.13E+10	2.6940	551232.	0.00
35.2000	-2.29E-05	1714.	-86.9773	1.58E-07	0.00	8.13E+10	2.6649	557568.	0.00
35.6000	-2.19E-05	1328.	-74.3960	2.48E-07	0.00	8.13E+10	2.5773	563904.	0.00
36.0000	-2.06E-05	1000.	-62.3484	3.17E-07	0.00	8.13E+10	2.4425	570240.	0.00
36.4000	-1.89E-05	729.0230	-51.0385	3.68E-07	0.00	8.13E+10	2.2700	576576.	0.00

36.8000	-1.70E-05	510.1882	-40.6275	4.04E-07	0.00	8.13E+10	2.0680	582912.	0.00
37.2000	-1.50E-05	338.9993	-31.2405	4.29E-07	0.00	8.13E+10	1.8433	589248.	0.00
37.6000	-1.29E-05	210.2795	-22.9733	4.46E-07	0.00	8.13E+10	1.6014	595584.	0.00
38.0000	-1.07E-05	118.4552	-15.8987	4.55E-07	0.00	8.13E+10	1.3464	601920.	0.00
38.4000	-8.53E-06	57.6523	-10.0717	4.61E-07	0.00	8.13E+10	1.0815	608256.	0.00
38.8000	-6.32E-06	21.7667	-5.5354	4.63E-07	0.00	8.13E+10	0.8086	614592.	0.00
39.2000	-4.09E-06	4.5123	-2.3247	4.64E-07	0.00	8.13E+10	0.5292	620928.	0.00
39.6000	-1.86E-06	-0.5503	-0.4700	4.64E-07	0.00	8.13E+10	0.2436	627264.	0.00
40.0000	3.62E-07	0.00	0.00	4.64E-07	0.00	8.13E+10	-0.04777	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 7:

```
Pile-head deflection             =     1.75000000 inches
Computed slope at pile head      =    -0.02408191 radians
Maximum bending moment           =       2574588. inch-lbs
Maximum shear force              =         50369. lbs
Depth of maximum bending moment  =     6.00000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             48
Number of zero deflection points =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 8

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                               =     2.000000 inches
Moment at pile head                                     =          0.0 in-lbs
Axial load at pile head                                 =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	0.00	50735.	-0.02735	0.00	8.13E+10	0.00	0.00	0.00
0.4000	1.8687	243527.	50577.	-0.02734	0.00	8.13E+10	-65.6146	168.5378	0.00
0.8000	1.7375	485542.	50084.	-0.02732	0.00	8.06E+10	-139.9990	386.7569	0.00

1.2000	1.6064	724331.	49219.	-0.02718	0.00	1.35E+10	-220.2175	658.0031	0.00
1.6000	1.4766	958047.	47963.	-0.02688	0.00	1.34E+10	-303.1881	985.5698	0.00
2.0000	1.3484	1184777.	46308.	-0.02649	0.00	1.34E+10	-386.4141	1376.	0.00
2.4000	1.2223	1402604.	44255.	-0.02603	0.00	1.33E+10	-469.0842	1842.	0.00
2.8000	1.0986	1609623.	41815.	-0.02548	0.00	1.33E+10	-547.5549	2392.	0.00
3.2000	0.9776	1804027.	39002.	-0.02487	0.00	1.32E+10	-624.3869	3066.	0.00
3.6000	0.8598	1984045.	35805.	-0.02417	0.00	1.28E+10	-707.8436	3951.	0.00
4.0000	0.7456	2147754.	32145.	-0.02336	0.00	1.18E+10	-816.9101	5259.	0.00
4.4000	0.6356	2292641.	27899.	-0.02237	0.00	9.88E+09	-952.2793	7192.	0.00
4.8000	0.5309	2415588.	22937.	-0.02115	0.00	8.74E+09	-1115.	10084.	0.00
5.2000	0.4326	2512839.	17103.	-0.01968	0.00	7.47E+09	-1316.	14601.	0.00
5.6000	0.3420	2579773.	10494.	-0.01767	0.00	5.18E+09	-1438.	20179.	0.00
6.0000	0.2629	2613579.	3504.	-0.01497	0.00	4.16E+09	-1475.	26918.	0.00
6.4000	0.1983	2613412.	-3615.	-0.01195	0.00	4.16E+09	-1492.	36100.	0.00
6.8000	0.1482	2578880.	-10764.	-0.00925	0.00	5.20E+09	-1487.	48177.	0.00
7.2000	0.1095	2510079.	-17838.	-0.00727	0.00	7.56E+09	-1460.	64019.	0.00
7.6000	0.07843	2407636.	-24706.	-0.00581	0.00	8.81E+09	-1401.	85776.	0.00
8.0000	0.05367	2272902.	-31205.	-0.00462	0.00	1.01E+10	-1306.	116848.	0.00
8.4000	0.03409	2108068.	-36609.	-0.00367	0.00	1.24E+10	-945.0924	133056.	0.00
8.8000	0.01845	1921459.	-40163.	-0.00290	0.00	1.30E+10	-535.7843	139392.	0.00
9.2000	0.00621	1722506.	-41901.	-0.00224	0.00	1.32E+10	-188.5028	145728.	0.00
9.6000	-0.00304	1519210.	-42123.	-0.00165	0.00	1.33E+10	96.1819	152064.	0.00
10.0000	-0.00965	1318129.	-41128.	-0.00114	0.00	1.33E+10	318.3998	158400.	0.00
10.4000	-0.01398	1124385.	-39212.	-7.02E-04	0.00	1.34E+10	479.9634	164736.	0.00
10.8000	-0.01639	941698.	-36658.	-3.32E-04	0.00	1.34E+10	584.0110	171072.	0.00
11.2000	-0.01717	772468.	-33733.	-2.60E-05	0.00	1.35E+10	634.6807	177408.	0.00
11.6000	-0.01664	617860.	-30682.	1.30E-04	0.00	8.04E+10	636.8267	183744.	0.00
12.0000	-0.01592	477925.	-27640.	1.63E-04	0.00	8.06E+10	630.5432	190080.	0.00
12.4000	-0.01507	352518.	-24646.	1.88E-04	0.00	8.08E+10	616.7880	196416.	0.00
12.8000	-0.01412	241322.	-21734.	2.05E-04	0.00	8.10E+10	596.5460	202752.	0.00
13.2000	-0.01310	143870.	-18933.	2.17E-04	0.00	8.12E+10	570.8071	209088.	0.00
13.6000	-0.01204	59569.	-16265.	2.23E-04	0.00	8.13E+10	540.5467	215424.	0.00
14.0000	-0.01097	-12277.	-13752.	2.24E-04	0.00	8.13E+10	506.7091	221760.	0.00
14.4000	-0.00989	-72449.	-11407.	2.21E-04	0.00	8.13E+10	470.1947	228096.	0.00
14.8000	-0.00884	-121788.	-9242.	2.16E-04	0.00	8.13E+10	431.8499	234432.	0.00
15.2000	-0.00782	-161177.	-7264.	2.07E-04	0.00	8.12E+10	392.4584	240768.	0.00
15.6000	-0.00685	-191523.	-5476.	1.97E-04	0.00	8.11E+10	352.7342	247104.	0.00
16.0000	-0.00593	-213743.	-3877.	1.85E-04	0.00	8.11E+10	313.3143	253440.	0.00
16.4000	-0.00508	-228744.	-2466.	1.72E-04	0.00	8.11E+10	274.7572	259776.	0.00
16.8000	-0.00428	-237414.	-1236.	1.58E-04	0.00	8.11E+10	237.5410	266112.	0.00
17.2000	-0.00356	-240611.	-181.1780	1.44E-04	0.00	8.11E+10	202.0639	272448.	0.00
17.6000	-0.00290	-239153.	708.5262	1.30E-04	0.00	8.11E+10	168.6462	278784.	0.00
18.0000	-0.00232	-233810.	1443.	1.16E-04	0.00	8.11E+10	137.5339	285120.	0.00
18.4000	-0.00179	-225297.	2035.	1.02E-04	0.00	8.11E+10	108.9036	291456.	0.00
18.8000	-0.00134	-214275.	2495.	8.90E-05	0.00	8.11E+10	82.8674	297792.	0.00
19.2000	-9.39E-04	-201344.	2837.	7.67E-05	0.00	8.11E+10	59.4790	304128.	0.00
19.6000	-5.99E-04	-187043.	3072.	6.53E-05	0.00	8.12E+10	38.7407	310464.	0.00
20.0000	-3.12E-04	-171849.	3215.	5.46E-05	0.00	8.12E+10	20.6101	316800.	0.00

20.4000	-7.44E-05	-156180.	3276.	4.49E-05	0.00	8.12E+10	5.0064	323136.	0.00
20.8000	1.19E-04	-140396.	3269.	3.62E-05	0.00	8.12E+10	-8.1833	329472.	0.00
21.2000	2.73E-04	-124801.	3203.	2.83E-05	0.00	8.13E+10	-19.0978	335808.	0.00
21.6000	3.91E-04	-109645.	3090.	2.14E-05	0.00	8.13E+10	-27.8959	342144.	0.00
22.0000	4.79E-04	-95132.	2940.	1.54E-05	0.00	8.13E+10	-34.7503	348480.	0.00
22.4000	5.39E-04	-81420.	2761.	1.02E-05	0.00	8.13E+10	-39.8430	354816.	0.00
22.8000	5.76E-04	-68626.	2561.	5.74E-06	0.00	8.13E+10	-43.3593	361152.	0.00
23.2000	5.94E-04	-56831.	2348.	2.04E-06	0.00	8.13E+10	-45.4855	367488.	0.00
23.6000	5.96E-04	-46084.	2128.	-9.99E-07	0.00	8.13E+10	-46.4049	373824.	0.00
24.0000	5.85E-04	-36406.	1905.	-3.43E-06	0.00	8.13E+10	-46.2948	380160.	0.00
24.4000	5.63E-04	-27794.	1685.	-5.33E-06	0.00	8.13E+10	-45.3242	386496.	0.00
24.8000	5.33E-04	-20227.	1472.	-6.74E-06	0.00	8.13E+10	-43.6521	392832.	0.00
25.2000	4.98E-04	-13666.	1268.	-7.75E-06	0.00	8.13E+10	-41.4256	399168.	0.00
25.6000	4.59E-04	-8059.	1075.	-8.39E-06	0.00	8.13E+10	-38.7789	405504.	0.00
26.0000	4.18E-04	-3345.	895.9756	-8.72E-06	0.00	8.13E+10	-35.8331	411840.	0.00
26.4000	3.75E-04	542.5800	731.5073	-8.81E-06	0.00	8.13E+10	-32.6954	418176.	0.00
26.8000	3.33E-04	3677.	582.3356	-8.68E-06	0.00	8.13E+10	-29.4595	424512.	0.00
27.2000	2.92E-04	6133.	448.7390	-8.39E-06	0.00	8.13E+10	-26.2057	430848.	0.00
27.6000	2.53E-04	7985.	330.6413	-7.97E-06	0.00	8.13E+10	-23.0016	437184.	0.00
28.0000	2.15E-04	9307.	227.6714	-7.46E-06	0.00	8.13E+10	-19.9025	443520.	0.00
28.4000	1.81E-04	10171.	139.2196	-6.89E-06	0.00	8.13E+10	-16.9524	449856.	0.00
28.8000	1.49E-04	10644.	64.4895	-6.28E-06	0.00	8.13E+10	-14.1851	456192.	0.00
29.2000	1.21E-04	10790.	2.5456	-5.64E-06	0.00	8.13E+10	-11.6248	462528.	0.00
29.6000	9.51E-05	10668.	-47.6444	-5.01E-06	0.00	8.13E+10	-9.2877	468864.	0.00
30.0000	7.25E-05	10332.	-87.1720	-4.39E-06	0.00	8.13E+10	-7.1822	475200.	0.00
30.4000	5.29E-05	9831.	-117.1556	-3.79E-06	0.00	8.13E+10	-5.3109	481536.	0.00
30.8000	3.61E-05	9208.	-138.7123	-3.23E-06	0.00	8.13E+10	-3.6710	487872.	0.00
31.2000	2.19E-05	8500.	-152.9354	-2.71E-06	0.00	8.13E+10	-2.2553	494208.	0.00
31.6000	1.01E-05	7740.	-160.8755	-2.23E-06	0.00	8.13E+10	-1.0531	500544.	0.00
32.0000	4.86E-07	6955.	-163.5263	-1.80E-06	0.00	8.13E+10	-0.05135	506880.	0.00
32.4000	-7.16E-06	6170.	-161.8132	-1.41E-06	0.00	8.13E+10	0.7651	513216.	0.00
32.8000	-1.31E-05	5402.	-156.5869	-1.07E-06	0.00	8.13E+10	1.4125	519552.	0.00
33.2000	-1.74E-05	4666.	-148.6179	-7.71E-07	0.00	8.13E+10	1.9079	525888.	0.00
33.6000	-2.05E-05	3975.	-138.5956	-5.16E-07	0.00	8.13E+10	2.2681	532224.	0.00
34.0000	-2.24E-05	3336.	-127.1280	-3.01E-07	0.00	8.13E+10	2.5100	538560.	0.00
34.4000	-2.33E-05	2755.	-114.7446	-1.21E-07	0.00	8.13E+10	2.6497	544896.	0.00
34.8000	-2.35E-05	2234.	-101.8996	2.64E-08	0.00	8.13E+10	2.7023	551232.	0.00
35.2000	-2.31E-05	1776.	-88.9773	1.45E-07	0.00	8.13E+10	2.6819	557568.	0.00
35.6000	-2.21E-05	1380.	-76.2977	2.38E-07	0.00	8.13E+10	2.6012	563904.	0.00
36.0000	-2.08E-05	1044.	-64.1230	3.09E-07	0.00	8.13E+10	2.4716	570240.	0.00
36.4000	-1.92E-05	764.6290	-52.6643	3.63E-07	0.00	8.13E+10	2.3029	576576.	0.00
36.8000	-1.73E-05	538.3691	-42.0890	4.01E-07	0.00	8.13E+10	2.1035	582912.	0.00
37.2000	-1.53E-05	360.5744	-32.5272	4.28E-07	0.00	8.13E+10	1.8806	589248.	0.00
37.6000	-1.32E-05	226.1083	-24.0785	4.45E-07	0.00	8.13E+10	1.6397	595584.	0.00
38.0000	-1.10E-05	129.4204	-16.8189	4.56E-07	0.00	8.13E+10	1.3852	601920.	0.00
38.4000	-8.84E-06	64.6471	-10.8057	4.61E-07	0.00	8.13E+10	1.1203	608256.	0.00
38.8000	-6.62E-06	25.6859	-6.0834	4.64E-07	0.00	8.13E+10	0.8473	614592.	0.00
39.2000	-4.39E-06	6.2463	-2.6881	4.65E-07	0.00	8.13E+10	0.5674	620928.	0.00

39.6000	-2.15E-06	-0.1195	-0.6507	4.65E-07	0.00	8.13E+10	0.2815	627264.	0.00
40.0000	7.86E-08	0.00	0.00	4.65E-07	0.00	8.13E+10	-0.01037	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 8:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =    -0.02734960 radians
Maximum bending moment            =       2613579. inch-lbs
Maximum shear force               =         50735. lbs
Depth of maximum bending moment   =     6.00000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             69
Number of zero deflection points  =              4
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 9

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.250000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	-2144716.	54520.	0.00	0.00	1.19E+10	-34.3300	329.5682	0.00
0.4000	0.2479	-1884000.	54111.	-8.15E-04	0.00	1.19E+10	-85.2151	1650.	0.00
0.8000	0.2422	-1625247.	53554.	-0.00149	0.00	1.33E+10	-147.0660	2915.	0.00
1.2000	0.2336	-1369883.	52686.	-0.00203	0.00	1.33E+10	-214.6104	4409.	0.00
1.6000	0.2227	-1119463.	51489.	-0.00248	0.00	1.34E+10	-283.9964	6121.	0.00
2.0000	0.2098	-875587.	49929.	-0.00283	0.00	1.34E+10	-366.1933	8377.	0.00
2.4000	0.1955	-640147.	47939.	-0.00301	0.00	8.03E+10	-462.9338	11367.	0.00
2.8000	0.1809	-415374.	45497.	-0.00304	0.00	8.07E+10	-554.5973	14712.	0.00
3.2000	0.1663	-203379.	42627.	-0.00306	0.00	8.11E+10	-641.0368	18504.	0.00
3.6000	0.1516	-6153.	39348.	-0.00307	0.00	8.13E+10	-725.1072	22962.	0.00

4.0000	0.1369	174367.	35688.	-0.00306	0.00	8.12E+10	-800.0780	28060.	0.00
4.4000	0.1222	336453.	31690.	-0.00305	0.00	8.09E+10	-865.7619	34008.	0.00
4.8000	0.1076	478591.	27416.	-0.00302	0.00	8.06E+10	-915.1428	40815.	0.00
5.2000	0.09319	599645.	22928.	-0.00299	0.00	8.04E+10	-954.6600	49172.	0.00
5.6000	0.07893	698703.	18276.	-0.00294	0.00	5.47E+10	-983.9817	59840.	0.00
6.0000	0.06496	775090.	13540.	-0.00277	0.00	1.35E+10	-989.0037	73079.	0.00
6.4000	0.05232	828691.	8755.	-0.00249	0.00	1.35E+10	-1005.	92181.	0.00
6.8000	0.04110	859142.	4131.	-0.00218	0.00	1.34E+10	-922.2073	107712.	0.00
7.2000	0.03135	868346.	129.8904	-0.00188	0.00	1.34E+10	-744.7898	114048.	0.00
7.6000	0.02308	860389.	-3047.	-0.00157	0.00	1.34E+10	-578.9537	120384.	0.00
8.0000	0.01630	839094.	-5469.	-0.00126	0.00	1.35E+10	-430.2268	126720.	0.00
8.4000	0.01095	807886.	-7230.	-9.71E-04	0.00	1.35E+10	-303.4222	133056.	0.00
8.8000	0.00698	769687.	-8444.	-6.89E-04	0.00	1.35E+10	-202.6593	139392.	0.00
9.2000	0.00433	726818.	-9246.	-4.23E-04	0.00	1.35E+10	-131.4057	145728.	0.00
9.6000	0.00292	680923.	-9784.	-2.73E-04	0.00	8.02E+10	-92.5259	152064.	0.00
10.0000	0.00171	632895.	-10141.	-2.34E-04	0.00	8.03E+10	-56.3825	158400.	0.00
10.4000	6.78E-04	583569.	-10332.	-1.97E-04	0.00	8.04E+10	-23.2686	164736.	0.00
10.8000	-1.85E-04	533706.	-10372.	-1.64E-04	0.00	8.05E+10	6.6081	171072.	0.00
11.2000	-8.96E-04	483996.	-10277.	-1.34E-04	0.00	8.06E+10	33.1199	177408.	0.00
11.6000	-0.00147	435048.	-10062.	-1.06E-04	0.00	8.07E+10	56.2128	183744.	0.00
12.0000	-0.00192	387396.	-9745.	-8.19E-05	0.00	8.08E+10	75.8982	190080.	0.00
12.4000	-0.00225	341492.	-9342.	-6.02E-05	0.00	8.09E+10	92.2461	196416.	0.00
12.8000	-0.00249	297714.	-8868.	-4.13E-05	0.00	8.10E+10	105.3759	202752.	0.00
13.2000	-0.00265	256364.	-8338.	-2.48E-05	0.00	8.10E+10	115.4498	209088.	0.00
13.6000	-0.00273	217674.	-7766.	-1.08E-05	0.00	8.11E+10	122.6627	215424.	0.00
14.0000	-0.00275	181809.	-7166.	1.02E-06	0.00	8.12E+10	127.2373	221760.	0.00
14.4000	-0.00272	148877.	-6550.	1.08E-05	0.00	8.12E+10	129.4144	228096.	0.00
14.8000	-0.00265	118926.	-5929.	1.87E-05	0.00	8.13E+10	129.4474	234432.	0.00
15.2000	-0.00254	91957.	-5312.	2.49E-05	0.00	8.13E+10	127.5968	240768.	0.00
15.6000	-0.00241	67929.	-4708.	2.96E-05	0.00	8.13E+10	124.1234	247104.	0.00
16.0000	-0.00226	46760.	-4124.	3.30E-05	0.00	8.13E+10	119.2836	253440.	0.00
16.4000	-0.00209	28339.	-3566.	3.53E-05	0.00	8.13E+10	113.3256	259776.	0.00
16.8000	-0.00192	12530.	-3038.	3.65E-05	0.00	8.13E+10	106.4865	266112.	0.00
17.2000	-0.00174	-826.2234	-2545.	3.68E-05	0.00	8.13E+10	98.9885	272448.	0.00
17.6000	-0.00157	-11902.	-2089.	3.64E-05	0.00	8.13E+10	91.0375	278784.	0.00
18.0000	-0.00139	-20879.	-1672.	3.55E-05	0.00	8.13E+10	82.8207	285120.	0.00
18.4000	-0.00123	-27949.	-1294.	3.40E-05	0.00	8.13E+10	74.5060	291456.	0.00
18.8000	-0.00107	-33302.	-956.2439	3.22E-05	0.00	8.13E+10	66.2409	297792.	0.00
19.2000	-9.18E-04	-37129.	-657.6982	3.01E-05	0.00	8.13E+10	58.1531	304128.	0.00
19.6000	-7.78E-04	-39616.	-397.2909	2.79E-05	0.00	8.13E+10	50.3499	310464.	0.00
20.0000	-6.50E-04	-40943.	-173.4440	2.55E-05	0.00	8.13E+10	42.9196	316800.	0.00
20.4000	-5.34E-04	-41281.	15.7994	2.31E-05	0.00	8.13E+10	35.9318	323136.	0.00
20.8000	-4.29E-04	-40791.	172.6899	2.06E-05	0.00	8.13E+10	29.4392	329472.	0.00
21.2000	-3.36E-04	-39623.	299.6916	1.83E-05	0.00	8.13E+10	23.4782	335808.	0.00
21.6000	-2.54E-04	-37914.	399.4100	1.60E-05	0.00	8.13E+10	18.0711	342144.	0.00
22.0000	-1.82E-04	-35789.	474.5261	1.38E-05	0.00	8.13E+10	13.2272	348480.	0.00
22.4000	-1.21E-04	-33359.	527.7383	1.18E-05	0.00	8.13E+10	8.9445	354816.	0.00
22.8000	-6.93E-05	-30723.	561.7126	9.87E-06	0.00	8.13E+10	5.2114	361152.	0.00

23.2000	-2.62E-05	-27966.	579.0393	8.14E-06	0.00	8.13E+10	2.0081	367488.	0.00
23.6000	8.88E-06	-25164.	582.1983	6.57E-06	0.00	8.13E+10	-0.6918	373824.	0.00
24.0000	3.69E-05	-22377.	573.5306	5.17E-06	0.00	8.13E+10	-2.9197	380160.	0.00
24.4000	5.85E-05	-19658.	555.2168	3.93E-06	0.00	8.13E+10	-4.7110	386496.	0.00
24.8000	7.46E-05	-17047.	529.2614	2.85E-06	0.00	8.13E+10	-6.1037	392832.	0.00
25.2000	8.58E-05	-14577.	497.4834	1.91E-06	0.00	8.13E+10	-7.1371	399168.	0.00
25.6000	9.29E-05	-12271.	461.5111	1.12E-06	0.00	8.13E+10	-7.8513	405504.	0.00
26.0000	9.66E-05	-10147.	422.7814	4.58E-07	0.00	8.13E+10	-8.2860	411840.	0.00
26.4000	9.73E-05	-8213.	382.5431	-8.36E-08	0.00	8.13E+10	-8.4799	418176.	0.00
26.8000	9.58E-05	-6474.	341.8634	-5.17E-07	0.00	8.13E+10	-8.4700	424512.	0.00
27.2000	9.24E-05	-4931.	301.6364	-8.54E-07	0.00	8.13E+10	-8.2913	430848.	0.00
27.6000	8.76E-05	-3579.	262.5939	-1.10E-06	0.00	8.13E+10	-7.9764	437184.	0.00
28.0000	8.18E-05	-2410.	225.3183	-1.28E-06	0.00	8.13E+10	-7.5551	443520.	0.00
28.4000	7.53E-05	-1415.	190.2549	-1.39E-06	0.00	8.13E+10	-7.0546	449856.	0.00
28.8000	6.84E-05	-583.5189	157.7270	-1.45E-06	0.00	8.13E+10	-6.4987	456192.	0.00
29.2000	6.13E-05	98.7049	127.9489	-1.47E-06	0.00	8.13E+10	-5.9088	462528.	0.00
29.6000	5.43E-05	644.7903	101.0407	-1.45E-06	0.00	8.13E+10	-5.3029	468864.	0.00
30.0000	4.74E-05	1069.	77.0419	-1.40E-06	0.00	8.13E+10	-4.6966	475200.	0.00
30.4000	4.09E-05	1384.	55.9240	-1.32E-06	0.00	8.13E+10	-4.1025	481536.	0.00
30.8000	3.47E-05	1606.	37.6033	-1.23E-06	0.00	8.13E+10	-3.5311	487872.	0.00
31.2000	2.90E-05	1745.	21.9521	-1.14E-06	0.00	8.13E+10	-2.9902	494208.	0.00
31.6000	2.38E-05	1816.	8.8095	-1.03E-06	0.00	8.13E+10	-2.4859	500544.	0.00
32.0000	1.91E-05	1830.	-2.0097	-9.23E-07	0.00	8.13E+10	-2.0221	506880.	0.00
32.4000	1.50E-05	1797.	-10.7062	-8.16E-07	0.00	8.13E+10	-1.6014	513216.	0.00
32.8000	1.13E-05	1727.	-17.4893	-7.12E-07	0.00	8.13E+10	-1.2248	519552.	0.00
33.2000	8.14E-06	1629.	-22.5701	-6.13E-07	0.00	8.13E+10	-0.8922	525888.	0.00
33.6000	5.43E-06	1511.	-26.1569	-5.20E-07	0.00	8.13E+10	-0.6023	532224.	0.00
34.0000	3.15E-06	1378.	-28.4505	-4.35E-07	0.00	8.13E+10	-0.3533	538560.	0.00
34.4000	1.26E-06	1237.	-29.6408	-3.58E-07	0.00	8.13E+10	-0.1426	544896.	0.00
34.8000	-2.86E-07	1093.	-29.9044	-2.89E-07	0.00	8.13E+10	0.03280	551232.	0.00
35.2000	-1.52E-06	950.2953	-29.4025	-2.29E-07	0.00	8.13E+10	0.1763	557568.	0.00
35.6000	-2.48E-06	811.1946	-28.2798	-1.77E-07	0.00	8.13E+10	0.2915	563904.	0.00
36.0000	-3.21E-06	678.8095	-26.6637	-1.33E-07	0.00	8.13E+10	0.3819	570240.	0.00
36.4000	-3.76E-06	555.2226	-24.6647	-9.63E-08	0.00	8.13E+10	0.4511	576576.	0.00
36.8000	-4.14E-06	442.0287	-22.3757	-6.69E-08	0.00	8.13E+10	0.5026	582912.	0.00
37.2000	-4.40E-06	340.4155	-19.8739	-4.38E-08	0.00	8.13E+10	0.5398	589248.	0.00
37.6000	-4.56E-06	251.2397	-17.2206	-2.63E-08	0.00	8.13E+10	0.5657	595584.	0.00
38.0000	-4.65E-06	175.0981	-14.4633	-1.37E-08	0.00	8.13E+10	0.5831	601920.	0.00
38.4000	-4.69E-06	112.3917	-11.6371	-5.26E-09	0.00	8.13E+10	0.5945	608256.	0.00
38.8000	-4.70E-06	63.3821	-8.7659	-7.49E-11	0.00	8.13E+10	0.6019	614592.	0.00
39.2000	-4.69E-06	28.2395	-5.8647	2.63E-09	0.00	8.13E+10	0.6070	620928.	0.00
39.6000	-4.68E-06	7.0813	-2.9416	3.67E-09	0.00	8.13E+10	0.6110	627264.	0.00
40.0000	-4.66E-06	0.00	0.00	3.88E-09	0.00	8.13E+10	0.6147	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be inter-

polated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 9:

```
Pile-head deflection             =     0.25000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -2144716. inch-lbs
Maximum shear force              =         54520. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             35
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 10

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.500000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	-2587435.	66352.	0.00	0.00	4.95E+09	-40.0000	192.0000	0.00
0.4000	0.4940	-2269990.	65917.	-0.00235	0.00	4.95E+09	-90.4956	879.3472	0.00
0.8000	0.4774	-1954630.	65340.	-0.00382	0.00	1.29E+10	-149.8763	1507.	0.00
1.2000	0.4573	-1642724.	64460.	-0.00448	0.00	1.33E+10	-216.7417	2275.	0.00
1.6000	0.4344	-1335811.	63242.	-0.00502	0.00	1.33E+10	-290.9760	3215.	0.00
2.0000	0.4092	-1035602.	61648.	-0.00544	0.00	1.34E+10	-373.2771	4379.	0.00
2.4000	0.3821	-743994.	59636.	-0.00576	0.00	1.35E+10	-465.0227	5841.	0.00
2.8000	0.3539	-463100.	57165.	-0.00591	0.00	8.06E+10	-564.6218	7659.	0.00
3.2000	0.3254	-195214.	54205.	-0.00593	0.00	8.11E+10	-668.3366	9858.	0.00
3.6000	0.2970	57273.	50744.	-0.00593	0.00	8.13E+10	-773.9430	12510.	0.00
4.0000	0.2685	291928.	46782.	-0.00592	0.00	8.10E+10	-876.7041	15673.	0.00
4.4000	0.2401	506384.	42350.	-0.00590	0.00	8.06E+10	-970.0633	19391.	0.00
4.8000	0.2119	698490.	37502.	-0.00586	0.00	8.02E+10	-1050.	23787.	0.00
5.2000	0.1839	866402.	32297.	-0.00569	0.00	1.34E+10	-1119.	29207.	0.00
5.6000	0.1573	1008539.	26789.	-0.00535	0.00	1.34E+10	-1176.	35885.	0.00
6.0000	0.1325	1123579.	21057.	-0.00497	0.00	1.34E+10	-1212.	43917.	0.00
6.4000	0.1096	1210687.	15145.	-0.00455	0.00	1.34E+10	-1251.	54781.	0.00

6.8000	0.08883	1268969.	9094.	-0.00410	0.00	1.34E+10	-1270.	68637.	0.00
7.2000	0.07023	1297987.	3006.	-0.00364	0.00	1.33E+10	-1266.	86552.	0.00
7.6000	0.05386	1297829.	-3000.	-0.00318	0.00	1.33E+10	-1236.	110162.	0.00
8.0000	0.03974	1269191.	-8484.	-0.00271	0.00	1.34E+10	-1049.	126720.	0.00
8.4000	0.02780	1216381.	-12852.	-0.00227	0.00	1.34E+10	-770.7385	133056.	0.00
8.8000	0.01797	1145814.	-15954.	-0.00184	0.00	1.34E+10	-521.7682	139392.	0.00
9.2000	0.01010	1063226.	-17942.	-0.00145	0.00	1.34E+10	-306.7161	145728.	0.00
9.6000	0.00407	973570.	-18987.	-0.00108	0.00	1.34E+10	-128.8092	152064.	0.00
10.0000	-2.99E-04	880947.	-19273.	-7.52E-04	0.00	1.34E+10	9.8820	158400.	0.00
10.4000	-0.00315	788551.	-18989.	-4.54E-04	0.00	1.35E+10	108.2742	164736.	0.00
10.8000	-0.00466	698651.	-18331.	-2.12E-04	0.00	1.64E+10	166.1036	171072.	0.00
11.2000	-0.00519	612577.	-17472.	-9.15E-05	0.00	8.04E+10	191.7361	177408.	0.00
11.6000	-0.00554	530920.	-16503.	-5.74E-05	0.00	8.05E+10	212.0386	183744.	0.00
12.0000	-0.00574	454150.	-15449.	-2.81E-05	0.00	8.07E+10	227.2535	190080.	0.00
12.4000	-0.00581	382615.	-14333.	-3.19E-06	0.00	8.08E+10	237.6873	196416.	0.00
12.8000	-0.00577	316556.	-13177.	1.76E-05	0.00	8.09E+10	243.6971	202752.	0.00
13.2000	-0.00564	256112.	-12003.	3.45E-05	0.00	8.10E+10	245.6774	209088.	0.00
13.6000	-0.00544	201329.	-10828.	4.81E-05	0.00	8.11E+10	244.0475	215424.	0.00
14.0000	-0.00518	152168.	-9668.	5.85E-05	0.00	8.12E+10	239.2426	221760.	0.00
14.4000	-0.00488	108519.	-8537.	6.62E-05	0.00	8.13E+10	231.7013	228096.	0.00
14.8000	-0.00454	70209.	-7449.	7.15E-05	0.00	8.13E+10	221.8593	234432.	0.00
15.2000	-0.00419	37011.	-6412.	7.47E-05	0.00	8.13E+10	210.1396	240768.	0.00
15.6000	-0.00383	8654.	-5435.	7.60E-05	0.00	8.13E+10	196.9476	247104.	0.00
16.0000	-0.00346	-15165.	-4524.	7.58E-05	0.00	8.13E+10	182.6661	253440.	0.00
16.4000	-0.00310	-34776.	-3683.	7.44E-05	0.00	8.13E+10	167.6506	259776.	0.00
16.8000	-0.00275	-50523.	-2915.	7.18E-05	0.00	8.13E+10	152.2261	266112.	0.00
17.2000	-0.00241	-62764.	-2222.	6.85E-05	0.00	8.13E+10	136.6848	272448.	0.00
17.6000	-0.00209	-71855.	-1603.	6.45E-05	0.00	8.13E+10	121.2848	278784.	0.00
18.0000	-0.00179	-78152.	-1057.	6.01E-05	0.00	8.13E+10	106.2496	285120.	0.00
18.4000	-0.00151	-82001.	-581.6199	5.54E-05	0.00	8.13E+10	91.7682	291456.	0.00
18.8000	-0.00126	-83736.	-174.1866	5.05E-05	0.00	8.13E+10	77.9957	297792.	0.00
19.2000	-0.00103	-83673.	169.1363	4.55E-05	0.00	8.13E+10	65.0555	304128.	0.00
19.6000	-8.20E-04	-82112.	452.5658	4.06E-05	0.00	8.13E+10	53.0402	310464.	0.00
20.0000	-6.37E-04	-79329.	680.6972	3.59E-05	0.00	8.13E+10	42.0146	316800.	0.00
20.4000	-4.76E-04	-75577.	858.3745	3.13E-05	0.00	8.13E+10	32.0176	323136.	0.00
20.8000	-3.36E-04	-71088.	990.5740	2.70E-05	0.00	8.13E+10	23.0655	329472.	0.00
21.2000	-2.17E-04	-66068.	1082.	2.29E-05	0.00	8.13E+10	15.1539	335808.	0.00
21.6000	-1.16E-04	-60698.	1138.	1.92E-05	0.00	8.13E+10	8.2612	342144.	0.00
22.0000	-3.24E-05	-55138.	1164.	1.58E-05	0.00	8.13E+10	2.3511	348480.	0.00
22.4000	3.55E-05	-49524.	1163.	1.27E-05	0.00	8.13E+10	-2.6247	354816.	0.00
22.8000	8.94E-05	-43971.	1141.	9.92E-06	0.00	8.13E+10	-6.7240	361152.	0.00
23.2000	1.31E-04	-38572.	1101.	7.49E-06	0.00	8.13E+10	-10.0118	367488.	0.00
23.6000	1.61E-04	-33404.	1047.	5.36E-06	0.00	8.13E+10	-12.5578	373824.	0.00
24.0000	1.82E-04	-28525.	981.7574	3.54E-06	0.00	8.13E+10	-14.4347	380160.	0.00
24.4000	1.95E-04	-23979.	909.3946	1.99E-06	0.00	8.13E+10	-15.7164	386496.	0.00
24.8000	2.01E-04	-19795.	832.1322	6.94E-07	0.00	8.13E+10	-16.4763	392832.	0.00
25.2000	2.02E-04	-15990.	752.3030	-3.62E-07	0.00	8.13E+10	-16.7859	399168.	0.00
25.6000	1.98E-04	-12573.	671.9028	-1.20E-06	0.00	8.13E+10	-16.7142	405504.	0.00

26.0000	1.90E-04	-9540.	592.6054	-1.86E-06	0.00	8.13E+10	-16.3263	411840.	0.00
26.4000	1.80E-04	-6884.	515.7829	-2.34E-06	0.00	8.13E+10	-15.6830	418176.	0.00
26.8000	1.68E-04	-4589.	442.5273	-2.68E-06	0.00	8.13E+10	-14.8401	424512.	0.00
27.2000	1.54E-04	-2635.	373.6750	-2.89E-06	0.00	8.13E+10	-13.8483	430848.	0.00
27.6000	1.40E-04	-1001.	309.8325	-3.00E-06	0.00	8.13E+10	-12.7528	437184.	0.00
28.0000	1.25E-04	338.9689	251.4018	-3.02E-06	0.00	8.13E+10	-11.5934	443520.	0.00
28.4000	1.11E-04	1412.	198.6069	-2.97E-06	0.00	8.13E+10	-10.4045	449856.	0.00
28.8000	9.70E-05	2246.	151.5186	-2.86E-06	0.00	8.13E+10	-9.2156	456192.	0.00
29.2000	8.35E-05	2867.	110.0790	-2.71E-06	0.00	8.13E+10	-8.0509	462528.	0.00
29.6000	7.09E-05	3302.	74.1248	-2.53E-06	0.00	8.13E+10	-6.9301	468864.	0.00
30.0000	5.93E-05	3578.	43.4081	-2.33E-06	0.00	8.13E+10	-5.8686	475200.	0.00
30.4000	4.86E-05	3719.	17.6162	-2.11E-06	0.00	8.13E+10	-4.8780	481536.	0.00
30.8000	3.90E-05	3747.	-3.6105	-1.89E-06	0.00	8.13E+10	-3.9664	487872.	0.00
31.2000	3.05E-05	3684.	-20.6630	-1.67E-06	0.00	8.13E+10	-3.1388	494208.	0.00
31.6000	2.30E-05	3549.	-33.9502	-1.46E-06	0.00	8.13E+10	-2.3975	500544.	0.00
32.0000	1.65E-05	3358.	-43.8863	-1.25E-06	0.00	8.13E+10	-1.7426	506880.	0.00
32.4000	1.10E-05	3128.	-50.8819	-1.06E-06	0.00	8.13E+10	-1.1723	513216.	0.00
32.8000	6.31E-06	2870.	-55.3351	-8.84E-07	0.00	8.13E+10	-0.6832	519552.	0.00
33.2000	2.47E-06	2597.	-57.6254	-7.23E-07	0.00	8.13E+10	-0.2710	525888.	0.00
33.6000	-6.29E-07	2317.	-58.1084	-5.78E-07	0.00	8.13E+10	0.06975	532224.	0.00
34.0000	-3.08E-06	2039.	-57.1128	-4.50E-07	0.00	8.13E+10	0.3451	538560.	0.00
34.4000	-4.94E-06	1769.	-54.9376	-3.37E-07	0.00	8.13E+10	0.5613	544896.	0.00
34.8000	-6.31E-06	1511.	-51.8507	-2.40E-07	0.00	8.13E+10	0.7249	551232.	0.00
35.2000	-7.25E-06	1271.	-48.0893	-1.58E-07	0.00	8.13E+10	0.8424	557568.	0.00
35.6000	-7.83E-06	1050.	-43.8595	-8.98E-08	0.00	8.13E+10	0.9200	563904.	0.00
36.0000	-8.11E-06	849.7187	-39.3380	-3.37E-08	0.00	8.13E+10	0.9639	570240.	0.00
36.4000	-8.16E-06	672.0003	-34.6736	1.12E-08	0.00	8.13E+10	0.9796	576576.	0.00
36.8000	-8.01E-06	516.8518	-29.9891	4.63E-08	0.00	8.13E+10	0.9723	582912.	0.00
37.2000	-7.71E-06	384.1046	-25.3838	7.29E-08	0.00	8.13E+10	0.9466	589248.	0.00
37.6000	-7.31E-06	273.1669	-20.9361	9.23E-08	0.00	8.13E+10	0.9066	595584.	0.00
38.0000	-6.83E-06	183.1178	-16.7061	1.06E-07	0.00	8.13E+10	0.8559	601920.	0.00
38.4000	-6.29E-06	112.7882	-12.7385	1.14E-07	0.00	8.13E+10	0.7973	608256.	0.00
38.8000	-5.73E-06	60.8282	-9.0653	1.20E-07	0.00	8.13E+10	0.7332	614592.	0.00
39.2000	-5.14E-06	25.7613	-5.7087	1.22E-07	0.00	8.13E+10	0.6654	620928.	0.00
39.6000	-4.55E-06	6.0251	-2.6835	1.23E-07	0.00	8.13E+10	0.5951	627264.	0.00
40.0000	-3.96E-06	0.00	0.00	1.23E-07	0.00	8.13E+10	0.5230	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 10:

Pile-head deflection = 0.50000000 inches

```
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -2587435. inch-lbs
Maximum shear force              =         66352. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             26
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 11

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.750000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	-2646372.	72462.	0.00	0.00	2.64E+09	-15.0000	48.0000	0.00
0.4000	0.7385	-2299427.	72099.	-0.00449	0.00	2.64E+09	-75.5139	490.8420	0.00
0.8000	0.7069	-1954221.	71571.	-0.00695	0.00	1.29E+10	-144.5130	981.3278	0.00
1.2000	0.6718	-1612345.	70700.	-0.00760	0.00	1.33E+10	-218.4255	1561.	0.00
1.6000	0.6339	-1275502.	69465.	-0.00812	0.00	1.34E+10	-296.2085	2243.	0.00
2.0000	0.5938	-945483.	67846.	-0.00852	0.00	1.34E+10	-378.2191	3057.	0.00
2.4000	0.5521	-624178.	65819.	-0.00871	0.00	8.04E+10	-466.3580	4055.	0.00
2.8000	0.5102	-313619.	63350.	-0.00874	0.00	8.09E+10	-562.3051	5290.	0.00
3.2000	0.4682	-16015.	60393.	-0.00875	0.00	8.13E+10	-669.7858	6866.	0.00
3.6000	0.4263	266158.	56886.	-0.00874	0.00	8.10E+10	-791.5518	8914.	0.00
4.0000	0.3844	530093.	52777.	-0.00871	0.00	8.05E+10	-920.4602	11495.	0.00
4.4000	0.3426	772820.	48096.	-0.00856	0.00	1.35E+10	-1030.	14430.	0.00
4.8000	0.3022	991819.	42916.	-0.00825	0.00	1.34E+10	-1129.	17927.	0.00
5.2000	0.2634	1184816.	37288.	-0.00786	0.00	1.34E+10	-1217.	22169.	0.00
5.6000	0.2268	1349779.	31265.	-0.00740	0.00	1.33E+10	-1293.	27366.	0.00
6.0000	0.1924	1484957.	24925.	-0.00689	0.00	1.33E+10	-1349.	33646.	0.00
6.4000	0.1606	1589063.	18326.	-0.00633	0.00	1.33E+10	-1401.	41873.	0.00
6.8000	0.1316	1660885.	11522.	-0.00575	0.00	1.33E+10	-1434.	52300.	0.00
7.2000	0.1055	1699673.	4618.	-0.00514	0.00	1.33E+10	-1443.	65667.	0.00
7.6000	0.08227	1705222.	-2261.	-0.00452	0.00	1.33E+10	-1424.	83080.	0.00
8.0000	0.06205	1677964.	-8976.	-0.00391	0.00	1.33E+10	-1374.	106283.	0.00
8.4000	0.04474	1619053.	-15250.	-0.00331	0.00	1.33E+10	-1240.	133056.	0.00
8.8000	0.03025	1531565.	-20335.	-0.00274	0.00	1.33E+10	-878.4456	139392.	0.00
9.2000	0.01841	1423838.	-23785.	-0.00221	0.00	1.33E+10	-558.9441	145728.	0.00

9.6000	0.00903	1303233.	-25813.	-0.00172	0.00	1.33E+10	-286.2174	152064.	0.00
10.0000	0.00191	1176033.	-26651.	-0.00127	0.00	1.34E+10	-62.9772	158400.	0.00
10.4000	-0.00319	1047382.	-26539.	-8.75E-04	0.00	1.34E+10	109.5553	164736.	0.00
10.8000	-0.00649	921256.	-25721.	-5.23E-04	0.00	1.34E+10	231.3947	171072.	0.00
11.2000	-0.00821	800461.	-24437.	-2.16E-04	0.00	1.35E+10	303.5456	177408.	0.00
11.6000	-0.00856	686660.	-22922.	-4.99E-05	0.00	7.17E+10	327.7834	183744.	0.00
12.0000	-0.00869	580410.	-21309.	-9.62E-06	0.00	8.04E+10	344.2065	190080.	0.00
12.4000	-0.00866	482092.	-19633.	2.21E-05	0.00	8.06E+10	354.1679	196416.	0.00
12.8000	-0.00848	391933.	-17923.	4.80E-05	0.00	8.08E+10	358.2119	202752.	0.00
13.2000	-0.00819	310027.	-16207.	6.89E-05	0.00	8.09E+10	356.9257	209088.	0.00
13.6000	-0.00782	236345.	-14508.	8.51E-05	0.00	8.11E+10	350.9222	215424.	0.00
14.0000	-0.00738	170749.	-12848.	9.71E-05	0.00	8.12E+10	340.8258	221760.	0.00
14.4000	-0.00689	113004.	-11245.	1.06E-04	0.00	8.13E+10	327.2596	228096.	0.00
14.8000	-0.00636	62800.	-9713.	1.11E-04	0.00	8.13E+10	310.8343	234432.	0.00
15.2000	-0.00582	19758.	-8266.	1.13E-04	0.00	8.13E+10	292.1374	240768.	0.00
15.6000	-0.00528	-16554.	-6913.	1.13E-04	0.00	8.13E+10	271.7261	247104.	0.00
16.0000	-0.00474	-46605.	-5660.	1.11E-04	0.00	8.13E+10	250.1214	253440.	0.00
16.4000	-0.00421	-70893.	-4513.	1.08E-04	0.00	8.13E+10	227.8027	259776.	0.00
16.8000	-0.00370	-89932.	-3474.	1.03E-04	0.00	8.13E+10	205.2038	266112.	0.00
17.2000	-0.00322	-104244.	-2543.	9.74E-05	0.00	8.13E+10	182.7104	272448.	0.00
17.6000	-0.00277	-114346.	-1719.	9.10E-05	0.00	8.13E+10	160.6591	278784.	0.00
18.0000	-0.00235	-120747.	-999.0248	8.40E-05	0.00	8.13E+10	139.3376	285120.	0.00
18.4000	-0.00196	-123937.	-379.0508	7.68E-05	0.00	8.13E+10	118.9849	291456.	0.00
18.8000	-0.00161	-124385.	146.0159	6.95E-05	0.00	8.13E+10	99.7929	297792.	0.00
19.2000	-0.00129	-122535.	582.1001	6.22E-05	0.00	8.13E+10	81.9088	304128.	0.00
19.6000	-0.00101	-118797.	935.7333	5.50E-05	0.00	8.13E+10	65.4383	310464.	0.00
20.0000	-7.64E-04	-113552.	1214.	4.82E-05	0.00	8.13E+10	50.4488	316800.	0.00
20.4000	-5.49E-04	-107144.	1424.	4.17E-05	0.00	8.13E+10	36.9730	323136.	0.00
20.8000	-3.64E-04	-99885.	1572.	3.56E-05	0.00	8.13E+10	25.0132	329472.	0.00
21.2000	-2.08E-04	-92049.	1667.	2.99E-05	0.00	8.13E+10	14.5454	335808.	0.00
21.6000	-7.75E-05	-83878.	1716.	2.47E-05	0.00	8.13E+10	5.5234	342144.	0.00
22.0000	2.92E-05	-75580.	1724.	2.00E-05	0.00	8.13E+10	-2.1177	348480.	0.00
22.4000	1.14E-04	-67330.	1698.	1.58E-05	0.00	8.13E+10	-8.4576	354816.	0.00
22.8000	1.81E-04	-59275.	1645.	1.20E-05	0.00	8.13E+10	-13.5873	361152.	0.00
23.2000	2.30E-04	-51534.	1571.	8.77E-06	0.00	8.13E+10	-17.6059	367488.	0.00
23.6000	2.65E-04	-44198.	1479.	5.94E-06	0.00	8.13E+10	-20.6178	373824.	0.00
24.0000	2.87E-04	-37337.	1375.	3.53E-06	0.00	8.13E+10	-22.7297	380160.	0.00
24.4000	2.99E-04	-31000.	1263.	1.52E-06	0.00	8.13E+10	-24.0487	386496.	0.00
24.8000	3.02E-04	-25217.	1146.	-1.42E-07	0.00	8.13E+10	-24.6797	392832.	0.00
25.2000	2.97E-04	-20002.	1027.	-1.48E-06	0.00	8.13E+10	-24.7242	399168.	0.00
25.6000	2.87E-04	-15358.	909.4058	-2.52E-06	0.00	8.13E+10	-24.2787	405504.	0.00
26.0000	2.73E-04	-11272.	794.8959	-3.31E-06	0.00	8.13E+10	-23.4337	411840.	0.00
26.4000	2.56E-04	-7727.	685.2000	-3.87E-06	0.00	8.13E+10	-22.2729	418176.	0.00
26.8000	2.36E-04	-4694.	581.6514	-4.23E-06	0.00	8.13E+10	-20.8723	424512.	0.00
27.2000	2.15E-04	-2143.	485.2367	-4.43E-06	0.00	8.13E+10	-19.3005	430848.	0.00
27.6000	1.93E-04	-35.9001	396.6322	-4.50E-06	0.00	8.13E+10	-17.6180	437184.	0.00
28.0000	1.72E-04	1665.	316.2429	-4.45E-06	0.00	8.13E+10	-15.8776	443520.	0.00
28.4000	1.51E-04	3000.	244.2384	-4.31E-06	0.00	8.13E+10	-14.1243	449856.	0.00

28.8000	1.30E-04	4010.	180.5895	-4.11E-06	0.00	8.13E+10	-12.3961	456192.	0.00
29.2000	1.11E-04	4734.	125.1019	-3.85E-06	0.00	8.13E+10	-10.7238	462528.	0.00
29.6000	9.35E-05	5211.	77.4483	-3.55E-06	0.00	8.13E+10	-9.1319	468864.	0.00
30.0000	7.72E-05	5477.	37.1976	-3.24E-06	0.00	8.13E+10	-7.6392	475200.	0.00
30.4000	6.24E-05	5568.	3.8417	-2.91E-06	0.00	8.13E+10	-6.2591	481536.	0.00
30.8000	4.92E-05	5514.	-23.1809	-2.59E-06	0.00	8.13E+10	-5.0003	487872.	0.00
31.2000	3.76E-05	5345.	-44.4638	-2.27E-06	0.00	8.13E+10	-3.8675	494208.	0.00
31.6000	2.74E-05	5087.	-60.6146	-1.96E-06	0.00	8.13E+10	-2.8620	500544.	0.00
32.0000	1.88E-05	4763.	-72.2400	-1.67E-06	0.00	8.13E+10	-1.9819	506880.	0.00
32.4000	1.14E-05	4394.	-79.9323	-1.40E-06	0.00	8.13E+10	-1.2232	513216.	0.00
32.8000	5.36E-06	3996.	-84.2598	-1.15E-06	0.00	8.13E+10	-0.5799	519552.	0.00
33.2000	4.07E-07	3585.	-85.7587	-9.26E-07	0.00	8.13E+10	-0.04460	525888.	0.00
33.6000	-3.53E-06	3173.	-84.9269	-7.26E-07	0.00	8.13E+10	0.3912	532224.	0.00
34.0000	-6.56E-06	2770.	-82.2204	-5.51E-07	0.00	8.13E+10	0.7365	538560.	0.00
34.4000	-8.82E-06	2383.	-78.0511	-3.99E-07	0.00	8.13E+10	1.0007	544896.	0.00
34.8000	-1.04E-05	2020.	-72.7851	-2.69E-07	0.00	8.13E+10	1.1934	551232.	0.00
35.2000	-1.14E-05	1685.	-66.7439	-1.59E-07	0.00	8.13E+10	1.3237	557568.	0.00
35.6000	-1.19E-05	1379.	-60.2054	-6.90E-08	0.00	8.13E+10	1.4006	563904.	0.00
36.0000	-1.21E-05	1107.	-53.4059	4.37E-09	0.00	8.13E+10	1.4325	570240.	0.00
36.4000	-1.19E-05	866.7978	-46.5428	6.26E-08	0.00	8.13E+10	1.4271	576576.	0.00
36.8000	-1.15E-05	659.8322	-39.7786	1.08E-07	0.00	8.13E+10	1.3914	582912.	0.00
37.2000	-1.08E-05	484.9235	-33.2436	1.41E-07	0.00	8.13E+10	1.3316	589248.	0.00
37.6000	-1.01E-05	340.6940	-27.0403	1.66E-07	0.00	8.13E+10	1.2531	595584.	0.00
38.0000	-9.26E-06	225.3362	-21.2475	1.83E-07	0.00	8.13E+10	1.1606	601920.	0.00
38.4000	-8.35E-06	136.7184	-15.9235	1.93E-07	0.00	8.13E+10	1.0577	608256.	0.00
38.8000	-7.40E-06	72.4708	-11.1108	1.99E-07	0.00	8.13E+10	0.9475	614592.	0.00
39.2000	-6.43E-06	30.0546	-6.8395	2.02E-07	0.00	8.13E+10	0.8322	620928.	0.00
39.6000	-5.46E-06	6.8118	-3.1307	2.03E-07	0.00	8.13E+10	0.7132	627264.	0.00
40.0000	-4.48E-06	0.00	0.00	2.04E-07	0.00	8.13E+10	0.5913	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 11:

```
Pile-head deflection             =     0.75000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -2646372. inch-lbs
Maximum shear force              =         72462. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             50
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 12

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.000000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	-2646343.	77026.	0.00	0.00	1.82E+09	0.00	0.00	0.00
0.4000	0.9832	-2277373.	76711.	-0.00651	0.00	1.82E+09	-65.6146	320.3284	0.00
0.8000	0.9375	-1909914.	76218.	-0.00987	0.00	1.30E+10	-139.9988	716.7765	0.00
1.2000	0.8885	-1545681.	75354.	-0.01050	0.00	1.33E+10	-220.1266	1189.	0.00
1.6000	0.8367	-1186520.	74102.	-0.01099	0.00	1.34E+10	-301.5280	1730.	0.00
2.0000	0.7829	-834306.	72458.	-0.01135	0.00	1.35E+10	-383.2805	2350.	0.00
2.4000	0.7277	-490923.	70416.	-0.01152	0.00	8.06E+10	-467.7338	3085.	0.00
2.8000	0.6724	-158316.	67958.	-0.01154	0.00	8.12E+10	-556.1685	3970.	0.00
3.2000	0.6170	161477.	65054.	-0.01154	0.00	8.12E+10	-654.1468	5089.	0.00
3.6000	0.5616	466198.	61647.	-0.01152	0.00	8.06E+10	-765.4196	6542.	0.00
4.0000	0.5064	753283.	57669.	-0.01137	0.00	1.35E+10	-892.0414	8455.	0.00
4.4000	0.4525	1019817.	53047.	-0.01105	0.00	1.34E+10	-1034.	10967.	0.00
4.8000	0.4003	1262531.	47699.	-0.01064	0.00	1.34E+10	-1194.	14324.	0.00
5.2000	0.3503	1477725.	41711.	-0.01015	0.00	1.33E+10	-1300.	17820.	0.00
5.6000	0.3028	1662957.	35246.	-0.00958	0.00	1.33E+10	-1393.	22083.	0.00
6.0000	0.2583	1816088.	28381.	-0.00895	0.00	1.32E+10	-1467.	27263.	0.00
6.4000	0.2169	1935419.	21185.	-0.00826	0.00	1.30E+10	-1532.	33897.	0.00
6.8000	0.1790	2019460.	13725.	-0.00753	0.00	1.27E+10	-1576.	42282.	0.00
7.2000	0.1447	2067182.	6110.	-0.00675	0.00	1.26E+10	-1597.	52979.	0.00
7.6000	0.1142	2078117.	-1534.	-0.00596	0.00	1.25E+10	-1588.	66792.	0.00
8.0000	0.08748	2052454.	-9062.	-0.00517	0.00	1.26E+10	-1548.	84942.	0.00
8.4000	0.06455	1991124.	-16401.	-0.00440	0.00	1.28E+10	-1510.	112281.	0.00
8.8000	0.04520	1895005.	-23175.	-0.00368	0.00	1.31E+10	-1313.	139392.	0.00
9.2000	0.02919	1768640.	-28453.	-0.00301	0.00	1.32E+10	-886.3331	145728.	0.00
9.6000	0.01626	1621855.	-31817.	-0.00240	0.00	1.33E+10	-515.2047	152064.	0.00
10.0000	0.00615	1463199.	-33540.	-0.00184	0.00	1.33E+10	-202.8541	158400.	0.00
10.4000	-0.00144	1299869.	-33909.	-0.00135	0.00	1.33E+10	49.2722	164736.	0.00
10.8000	-0.00677	1137675.	-33211.	-9.08E-04	0.00	1.34E+10	241.4504	171072.	0.00
11.2000	-0.01016	981043.	-31731.	-5.29E-04	0.00	1.34E+10	375.3439	177408.	0.00
11.6000	-0.01185	833060.	-29741.	-2.05E-04	0.00	1.35E+10	453.6865	183744.	0.00
12.0000	-0.01212	695529.	-27500.	-6.93E-06	0.00	3.39E+10	480.0050	190080.	0.00

12.4000	-0.01192	569058.	-25178.	5.93E-05	0.00	8.05E+10	487.6986	196416.	0.00
12.8000	-0.01155	453823.	-22836.	8.97E-05	0.00	8.07E+10	487.9728	202752.	0.00
13.2000	-0.01106	349831.	-20509.	1.14E-04	0.00	8.09E+10	481.6346	209088.	0.00
13.6000	-0.01046	256936.	-18226.	1.32E-04	0.00	8.10E+10	469.5142	215424.	0.00
14.0000	-0.00979	174859.	-16014.	1.44E-04	0.00	8.12E+10	452.4466	221760.	0.00
14.4000	-0.00908	103206.	-13893.	1.53E-04	0.00	8.13E+10	431.2560	228096.	0.00
14.8000	-0.00833	41489.	-11881.	1.57E-04	0.00	8.13E+10	406.7419	234432.	0.00
15.2000	-0.00757	-10856.	-9994.	1.58E-04	0.00	8.13E+10	379.6655	240768.	0.00
15.6000	-0.00681	-54454.	-8241.	1.56E-04	0.00	8.13E+10	350.7438	247104.	0.00
16.0000	-0.00607	-89971.	-6630.	1.52E-04	0.00	8.13E+10	320.6411	253440.	0.00
16.4000	-0.00536	-118100.	-5164.	1.45E-04	0.00	8.13E+10	289.9632	259776.	0.00
16.8000	-0.00468	-139549.	-3846.	1.38E-04	0.00	8.12E+10	259.2540	266112.	0.00
17.2000	-0.00403	-155024.	-2674.	1.29E-04	0.00	8.12E+10	228.9925	272448.	0.00
17.6000	-0.00344	-165223.	-1646.	1.20E-04	0.00	8.12E+10	199.5913	278784.	0.00
18.0000	-0.00289	-170824.	-755.4676	1.10E-04	0.00	8.12E+10	171.3971	285120.	0.00
18.4000	-0.00238	-172476.	3.1470	9.96E-05	0.00	8.12E+10	144.6923	291456.	0.00
18.8000	-0.00193	-170794.	637.6840	8.94E-05	0.00	8.12E+10	119.6981	297792.	0.00
19.2000	-0.00152	-166354.	1157.	7.95E-05	0.00	8.12E+10	96.5780	304128.	0.00
19.6000	-0.00117	-159689.	1570.	6.98E-05	0.00	8.12E+10	75.4424	310464.	0.00
20.0000	-8.54E-04	-151286.	1886.	6.06E-05	0.00	8.12E+10	56.3528	316800.	0.00
20.4000	-5.84E-04	-141584.	2116.	5.20E-05	0.00	8.12E+10	39.3279	323136.	0.00
20.8000	-3.55E-04	-130977.	2268.	4.39E-05	0.00	8.12E+10	24.3480	329472.	0.00
21.2000	-1.62E-04	-119808.	2354.	3.65E-05	0.00	8.13E+10	11.3611	335808.	0.00
21.6000	-4.03E-06	-108378.	2382.	2.98E-05	0.00	8.13E+10	0.2876	342144.	0.00
22.0000	1.24E-04	-96941.	2361.	2.37E-05	0.00	8.13E+10	-8.9742	348480.	0.00
22.4000	2.24E-04	-85711.	2300.	1.83E-05	0.00	8.13E+10	-16.5427	354816.	0.00
22.8000	3.00E-04	-74862.	2206.	1.36E-05	0.00	8.13E+10	-22.5487	361152.	0.00
23.2000	3.54E-04	-64532.	2087.	9.49E-06	0.00	8.13E+10	-27.1312	367488.	0.00
23.6000	3.91E-04	-54827.	1949.	5.97E-06	0.00	8.13E+10	-30.4343	373824.	0.00
24.0000	4.12E-04	-45824.	1797.	3.00E-06	0.00	8.13E+10	-32.6032	380160.	0.00
24.4000	4.20E-04	-37572.	1638.	5.35E-07	0.00	8.13E+10	-33.7818	386496.	0.00
24.8000	4.17E-04	-30098.	1475.	-1.46E-06	0.00	8.13E+10	-34.1101	392832.	0.00
25.2000	4.06E-04	-23411.	1312.	-3.04E-06	0.00	8.13E+10	-33.7220	399168.	0.00
25.6000	3.88E-04	-17500.	1153.	-4.25E-06	0.00	8.13E+10	-32.7438	405504.	0.00
26.0000	3.65E-04	-12343.	999.1650	-5.13E-06	0.00	8.13E+10	-31.2929	411840.	0.00
26.4000	3.38E-04	-7908.	853.3176	-5.73E-06	0.00	8.13E+10	-29.4769	418176.	0.00
26.8000	3.10E-04	-4151.	716.8293	-6.08E-06	0.00	8.13E+10	-27.3932	424512.	0.00
27.2000	2.80E-04	-1026.	590.7775	-6.24E-06	0.00	8.13E+10	-25.1284	430848.	0.00
27.6000	2.50E-04	1520.	475.8489	-6.22E-06	0.00	8.13E+10	-22.7585	437184.	0.00
28.0000	2.20E-04	3542.	372.3911	-6.07E-06	0.00	8.13E+10	-20.3490	443520.	0.00
28.4000	1.92E-04	5095.	280.4610	-5.82E-06	0.00	8.13E+10	-17.9552	449856.	0.00
28.8000	1.64E-04	6235.	199.8732	-5.48E-06	0.00	8.13E+10	-15.6231	456192.	0.00
29.2000	1.39E-04	7014.	130.2436	-5.09E-06	0.00	8.13E+10	-13.3893	462528.	0.00
29.6000	1.16E-04	7485.	71.0314	-4.66E-06	0.00	8.13E+10	-11.2825	468864.	0.00
30.0000	9.42E-05	7696.	21.5766	-4.22E-06	0.00	8.13E+10	-9.3237	475200.	0.00
30.4000	7.50E-05	7692.	-18.8660	-3.76E-06	0.00	8.13E+10	-7.5274	481536.	0.00
30.8000	5.81E-05	7515.	-51.0965	-3.31E-06	0.00	8.13E+10	-5.9020	487872.	0.00
31.2000	4.32E-05	7201.	-75.9437	-2.88E-06	0.00	8.13E+10	-4.4510	494208.	0.00

31.6000	3.04E-05	6786.	-94.2430	-2.47E-06	0.00	8.13E+10	-3.1737	500544.	0.00
32.0000	1.96E-05	6297.	-106.8170	-2.08E-06	0.00	8.13E+10	-2.0655	506880.	0.00
32.4000	1.05E-05	5760.	-114.4608	-1.72E-06	0.00	8.13E+10	-1.1194	513216.	0.00
32.8000	3.01E-06	5198.	-117.9296	-1.40E-06	0.00	8.13E+10	-0.3259	519552.	0.00
33.2000	-2.97E-06	4628.	-117.9299	-1.11E-06	0.00	8.13E+10	0.3259	525888.	0.00
33.6000	-7.65E-06	4066.	-115.1124	-8.54E-07	0.00	8.13E+10	0.8481	532224.	0.00
34.0000	-1.12E-05	3523.	-110.0688	-6.30E-07	0.00	8.13E+10	1.2534	538560.	0.00
34.4000	-1.37E-05	3009.	-103.3293	-4.37E-07	0.00	8.13E+10	1.5547	544896.	0.00
34.8000	-1.54E-05	2531.	-95.3625	-2.74E-07	0.00	8.13E+10	1.7648	551232.	0.00
35.2000	-1.63E-05	2094.	-86.5766	-1.37E-07	0.00	8.13E+10	1.8960	557568.	0.00
35.6000	-1.67E-05	1700.	-77.3223	-2.52E-08	0.00	8.13E+10	1.9600	563904.	0.00
36.0000	-1.66E-05	1351.	-67.8956	6.49E-08	0.00	8.13E+10	1.9678	570240.	0.00
36.4000	-1.61E-05	1048.	-58.5428	1.36E-07	0.00	8.13E+10	1.9292	576576.	0.00
36.8000	-1.53E-05	789.3377	-49.4648	1.90E-07	0.00	8.13E+10	1.8533	582912.	0.00
37.2000	-1.42E-05	573.2568	-40.8221	2.30E-07	0.00	8.13E+10	1.7478	589248.	0.00
37.6000	-1.31E-05	397.4452	-32.7407	2.59E-07	0.00	8.13E+10	1.6195	595584.	0.00
38.0000	-1.18E-05	258.9457	-25.3168	2.78E-07	0.00	8.13E+10	1.4739	601920.	0.00
38.4000	-1.04E-05	154.4038	-18.6223	2.90E-07	0.00	8.13E+10	1.3155	608256.	0.00
38.8000	-8.97E-06	80.1716	-12.7099	2.97E-07	0.00	8.13E+10	1.1480	614592.	0.00
39.2000	-7.53E-06	32.3889	-7.6177	3.01E-07	0.00	8.13E+10	0.9738	620928.	0.00
39.6000	-6.08E-06	7.0414	-3.3738	3.02E-07	0.00	8.13E+10	0.7945	627264.	0.00
40.0000	-4.63E-06	0.00	0.00	3.02E-07	0.00	8.13E+10	0.6112	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 12:

```
Pile-head deflection            =     1.00000000 inches
Computed slope at pile head     =       0.000000 radians
Maximum bending moment          =      -2646343. inch-lbs
Maximum shear force             =         77026. lbs
Depth of maximum bending moment =       0.000000 feet below pile head
Depth of maximum shear force    =       0.000000 feet below pile head
Number of iterations            =             50
Number of zero deflection points =             3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 13

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.250000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	-2646317.	79487.	0.00	0.00	1.40E+09	0.00	0.00	0.00
0.4000	1.2282	-2265536.	79172.	-0.00844	0.00	1.40E+09	-65.6146	256.4352	0.00
0.8000	1.1690	-1886266.	78678.	-0.01267	0.00	1.31E+10	-139.9989	574.8343	0.00
1.2000	1.1065	-1510223.	77814.	-0.01329	0.00	1.33E+10	-220.2174	955.2626	0.00
1.6000	1.0415	-1139253.	76558.	-0.01377	0.00	1.34E+10	-303.1879	1397.	0.00
2.0000	0.9744	-775268.	74903.	-0.01411	0.00	1.35E+10	-386.4137	1904.	0.00
2.4000	0.9060	-420186.	72850.	-0.01426	0.00	8.07E+10	-469.0836	2485.	0.00
2.8000	0.8375	-75912.	70404.	-0.01427	0.00	8.13E+10	-549.9190	3152.	0.00
3.2000	0.7690	255691.	67553.	-0.01427	0.00	8.10E+10	-638.1619	3983.	0.00
3.6000	0.7006	572592.	64248.	-0.01424	0.00	8.04E+10	-738.5986	5061.	0.00
4.0000	0.6323	872475.	60430.	-0.01407	0.00	1.34E+10	-852.5133	6472.	0.00
4.4000	0.5655	1152716.	56023.	-0.01371	0.00	1.34E+10	-983.4873	8348.	0.00
4.8000	0.5007	1410298.	50942.	-0.01325	0.00	1.33E+10	-1134.	10868.	0.00
5.2000	0.4383	1641761.	45074.	-0.01270	0.00	1.33E+10	-1311.	14361.	0.00
5.6000	0.3788	1843010.	38384.	-0.01206	0.00	1.32E+10	-1476.	18707.	0.00
6.0000	0.3225	2010246.	31089.	-0.01135	0.00	1.27E+10	-1563.	23265.	0.00
6.4000	0.2698	2141467.	23416.	-0.01054	0.00	1.19E+10	-1634.	29071.	0.00
6.8000	0.2213	2235037.	15454.	-0.00960	0.00	1.06E+10	-1683.	36505.	0.00
7.2000	0.1776	2289830.	7322.	-0.00854	0.00	9.91E+09	-1705.	46080.	0.00
7.6000	0.1393	2305331.	-845.3002	-0.00742	0.00	9.75E+09	-1698.	58494.	0.00
8.0000	0.1064	2281715.	-8897.	-0.00630	0.00	1.00E+10	-1657.	74741.	0.00
8.4000	0.07881	2219916.	-16759.	-0.00526	0.00	1.07E+10	-1618.	98575.	0.00
8.8000	0.05594	2120828.	-24368.	-0.00435	0.00	1.22E+10	-1552.	133182.	0.00
9.2000	0.03708	1985979.	-30795.	-0.00356	0.00	1.28E+10	-1126.	145728.	0.00
9.6000	0.02179	1825193.	-35154.	-0.00285	0.00	1.32E+10	-690.3328	152064.	0.00
10.0000	0.00968	1648502.	-37578.	-0.00222	0.00	1.33E+10	-319.5434	158400.	0.00
10.4000	4.39E-04	1464448.	-38381.	-0.00166	0.00	1.33E+10	-15.0589	164736.	0.00
10.8000	-0.00627	1280048.	-37880.	-0.00117	0.00	1.34E+10	223.4780	171072.	0.00
11.2000	-0.01077	1100796.	-36389.	-7.40E-04	0.00	1.34E+10	398.0914	177408.	0.00
11.6000	-0.01338	930716.	-34204.	-3.77E-04	0.00	1.34E+10	512.0959	183744.	0.00
12.0000	-0.01439	772435.	-31608.	-7.28E-05	0.00	1.35E+10	569.7564	190080.	0.00
12.4000	-0.01408	627282.	-28858.	8.36E-05	0.00	8.03E+10	575.9986	196416.	0.00
12.8000	-0.01358	495399.	-26098.	1.17E-04	0.00	8.06E+10	573.8203	202752.	0.00
13.2000	-0.01295	376737.	-23367.	1.43E-04	0.00	8.08E+10	564.1756	209088.	0.00
13.6000	-0.01221	271074.	-20698.	1.62E-04	0.00	8.10E+10	548.0389	215424.	0.00
14.0000	-0.01139	178037.	-18119.	1.76E-04	0.00	8.12E+10	526.3850	221760.	0.00
14.4000	-0.01053	97128.	-15656.	1.84E-04	0.00	8.13E+10	500.1709	228096.	0.00
14.8000	-0.00963	27744.	-13326.	1.87E-04	0.00	8.13E+10	470.3210	234432.	0.00

15.2000	-0.00873	-30805.	-11147.	1.87E-04	0.00	8.13E+10	437.7124	240768.	0.00
15.6000	-0.00783	-79268.	-9129.	1.84E-04	0.00	8.13E+10	403.1677	247104.	0.00
16.0000	-0.00696	-118443.	-7279.	1.78E-04	0.00	8.13E+10	367.4466	253440.	0.00
16.4000	-0.00612	-149151.	-5603.	1.70E-04	0.00	8.12E+10	331.2399	259776.	0.00
16.8000	-0.00532	-172228.	-4099.	1.61E-04	0.00	8.12E+10	295.1650	266112.	0.00
17.2000	-0.00458	-188504.	-2767.	1.50E-04	0.00	8.12E+10	259.7622	272448.	0.00
17.6000	-0.00388	-198796.	-1603.	1.39E-04	0.00	8.11E+10	225.4944	278784.	0.00
18.0000	-0.00324	-203892.	-599.0584	1.27E-04	0.00	8.11E+10	192.7473	285120.	0.00
18.4000	-0.00267	-204547.	251.9334	1.15E-04	0.00	8.11E+10	161.8326	291456.	0.00
18.8000	-0.00214	-201473.	959.5109	1.03E-04	0.00	8.11E+10	132.9913	297792.	0.00
19.2000	-0.00168	-195335.	1534.	9.10E-05	0.00	8.11E+10	106.3978	304128.	0.00
19.6000	-0.00127	-186746.	1987.	7.97E-05	0.00	8.12E+10	82.1657	310464.	0.00
20.0000	-9.14E-04	-176264.	2329.	6.89E-05	0.00	8.12E+10	60.3532	316800.	0.00
20.4000	-6.09E-04	-164391.	2572.	5.89E-05	0.00	8.12E+10	40.9695	323136.	0.00
20.8000	-3.49E-04	-151575.	2728.	4.95E-05	0.00	8.12E+10	23.9807	329472.	0.00
21.2000	-1.33E-04	-138205.	2808.	4.10E-05	0.00	8.12E+10	9.3165	335808.	0.00
21.6000	4.38E-05	-124622.	2822.	3.32E-05	0.00	8.13E+10	-3.1241	342144.	0.00
22.0000	1.85E-04	-111110.	2783.	2.62E-05	0.00	8.13E+10	-13.4665	348480.	0.00
22.4000	2.96E-04	-97908.	2698.	2.01E-05	0.00	8.13E+10	-21.8550	354816.	0.00
22.8000	3.78E-04	-85210.	2577.	1.47E-05	0.00	8.13E+10	-28.4473	361152.	0.00
23.2000	4.36E-04	-73167.	2429.	9.98E-06	0.00	8.13E+10	-33.4090	367488.	0.00
23.6000	4.74E-04	-61894.	2260.	6.00E-06	0.00	8.13E+10	-36.9101	373824.	0.00
24.0000	4.94E-04	-51472.	2077.	2.65E-06	0.00	8.13E+10	-39.1216	380160.	0.00
24.4000	4.99E-04	-41951.	1887.	-1.05E-07	0.00	8.13E+10	-40.2117	386496.	0.00
24.8000	4.93E-04	-33356.	1694.	-2.33E-06	0.00	8.13E+10	-40.3435	392832.	0.00
25.2000	4.77E-04	-25691.	1502.	-4.07E-06	0.00	8.13E+10	-39.6724	399168.	0.00
25.6000	4.54E-04	-18940.	1314.	-5.39E-06	0.00	8.13E+10	-38.3444	405504.	0.00
26.0000	4.25E-04	-13072.	1135.	-6.33E-06	0.00	8.13E+10	-36.4948	411840.	0.00
26.4000	3.93E-04	-8046.	965.0566	-6.95E-06	0.00	8.13E+10	-34.2472	418176.	0.00
26.8000	3.59E-04	-3808.	806.7521	-7.30E-06	0.00	8.13E+10	-31.7130	424512.	0.00
27.2000	3.23E-04	-300.6952	661.0632	-7.43E-06	0.00	8.13E+10	-28.9907	430848.	0.00
27.6000	2.87E-04	2538.	528.6854	-7.36E-06	0.00	8.13E+10	-26.1667	437184.	0.00
28.0000	2.52E-04	4775.	409.9293	-7.14E-06	0.00	8.13E+10	-23.3150	443520.	0.00
28.4000	2.19E-04	6474.	304.7789	-6.81E-06	0.00	8.13E+10	-20.4977	449856.	0.00
28.8000	1.87E-04	7701.	212.9462	-6.39E-06	0.00	8.13E+10	-17.7660	456192.	0.00
29.2000	1.57E-04	8518.	133.9225	-5.92E-06	0.00	8.13E+10	-15.1606	462528.	0.00
29.6000	1.30E-04	8986.	67.0265	-5.40E-06	0.00	8.13E+10	-12.7128	468864.	0.00
30.0000	1.06E-04	9161.	11.4473	-4.86E-06	0.00	8.13E+10	-10.4452	475200.	0.00
30.4000	8.35E-05	9096.	-33.7166	-4.32E-06	0.00	8.13E+10	-8.3731	481536.	0.00
30.8000	6.40E-05	8838.	-69.4230	-3.79E-06	0.00	8.13E+10	-6.5046	487872.	0.00
31.2000	4.70E-05	8430.	-96.6563	-3.29E-06	0.00	8.13E+10	-4.8426	494208.	0.00
31.6000	3.25E-05	7910.	-116.4020	-2.80E-06	0.00	8.13E+10	-3.3848	500544.	0.00
32.0000	2.01E-05	7312.	-129.6260	-2.35E-06	0.00	8.13E+10	-2.1252	506880.	0.00
32.4000	9.86E-06	6666.	-137.2574	-1.94E-06	0.00	8.13E+10	-1.0545	513216.	0.00
32.8000	1.49E-06	5995.	-140.1752	-1.57E-06	0.00	8.13E+10	-0.1612	519552.	0.00
33.2000	-5.19E-06	5320.	-139.1985	-1.23E-06	0.00	8.13E+10	0.5682	525888.	0.00
33.6000	-1.04E-05	4658.	-135.0794	-9.39E-07	0.00	8.13E+10	1.1481	532224.	0.00
34.0000	-1.42E-05	4023.	-128.4996	-6.83E-07	0.00	8.13E+10	1.5935	538560.	0.00

34.4000	-1.69E-05	3425.	-120.0677	-4.63E-07	0.00	8.13E+10	1.9198	544896.	0.00
34.8000	-1.86E-05	2870.	-110.3202	-2.77E-07	0.00	8.13E+10	2.1417	551232.	0.00
35.2000	-1.96E-05	2366.	-99.7230	-1.23E-07	0.00	8.13E+10	2.2738	557568.	0.00
35.6000	-1.98E-05	1913.	-88.6749	3.35E-09	0.00	8.13E+10	2.3296	563904.	0.00
36.0000	-1.95E-05	1514.	-77.5120	1.04E-07	0.00	8.13E+10	2.3216	570240.	0.00
36.4000	-1.88E-05	1169.	-66.5127	1.84E-07	0.00	8.13E+10	2.2614	576576.	0.00
36.8000	-1.78E-05	875.7447	-55.9034	2.44E-07	0.00	8.13E+10	2.1591	582912.	0.00
37.2000	-1.65E-05	632.2809	-45.8651	2.89E-07	0.00	8.13E+10	2.0235	589248.	0.00
37.6000	-1.50E-05	435.4394	-36.5390	3.20E-07	0.00	8.13E+10	1.8623	595584.	0.00
38.0000	-1.34E-05	281.5061	-28.0332	3.41E-07	0.00	8.13E+10	1.6818	601920.	0.00
38.4000	-1.17E-05	166.3208	-20.4284	3.54E-07	0.00	8.13E+10	1.4869	608256.	0.00
38.8000	-1.00E-05	85.3931	-13.7843	3.62E-07	0.00	8.13E+10	1.2815	614592.	0.00
39.2000	-8.26E-06	33.9919	-8.1442	3.65E-07	0.00	8.13E+10	1.0685	620928.	0.00
39.6000	-6.50E-06	7.2088	-3.5408	3.67E-07	0.00	8.13E+10	0.8496	627264.	0.00
40.0000	-4.74E-06	0.00	0.00	3.67E-07	0.00	8.13E+10	0.6258	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 13:

```
Pile-head deflection              =     1.25000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -2646317. inch-lbs
Maximum shear force               =         79487. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             27
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 14

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Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.500000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
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Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil Res.	Soil Spr.	Distrib.

RsdArena 24 CIDH 20201028.lp10o

X feet	y inches	Moment in-lbs	Force lbs	S radians	Stress psi*	Stiffness in-lb^2	p lb/inch	Es*h lb/inch	Lat. Load lb/inch
0.00	1.5000	-2646317.	80948.	0.00	0.00	1.14E+09	0.00	0.00	0.00
0.4000	1.4732	-2258522.	80633.	-0.01034	0.00	1.14E+09	-65.6146	213.7815	0.00
0.8000	1.4008	-1872238.	80140.	-0.01544	0.00	1.32E+10	-139.9989	479.7288	0.00
1.2000	1.3250	-1489180.	79275.	-0.01605	0.00	1.33E+10	-220.2174	797.7401	0.00
1.6000	1.2467	-1111195.	78019.	-0.01651	0.00	1.34E+10	-303.1878	1167.	0.00
2.0000	1.1665	-740196.	76364.	-0.01685	0.00	1.35E+10	-386.4136	1590.	0.00
2.4000	1.0850	-378100.	74311.	-0.01699	0.00	8.08E+10	-469.0834	2075.	0.00
2.8000	1.0034	-26812.	71871.	-0.01700	0.00	8.13E+10	-547.5538	2619.	0.00
3.2000	0.9218	311861.	69058.	-0.01699	0.00	8.09E+10	-624.3853	3251.	0.00
3.6000	0.8403	636148.	65852.	-0.01696	0.00	8.03E+10	-711.6144	4065.	0.00
4.0000	0.7590	944039.	62193.	-0.01678	0.00	1.34E+10	-812.7155	5140.	0.00
4.4000	0.6793	1233205.	58004.	-0.01639	0.00	1.34E+10	-932.8392	6592.	0.00
4.8000	0.6017	1500879.	53192.	-0.01589	0.00	1.33E+10	-1072.	8555.	0.00
5.2000	0.5267	1743845.	47637.	-0.01531	0.00	1.32E+10	-1242.	11321.	0.00
5.6000	0.4547	1958191.	41189.	-0.01463	0.00	1.29E+10	-1444.	15245.	0.00
6.0000	0.3863	2139262.	33773.	-0.01383	0.00	1.20E+10	-1646.	20452.	0.00
6.4000	0.3219	2282414.	25691.	-0.01286	0.00	1.00E+10	-1722.	25675.	0.00
6.8000	0.2629	2385891.	17298.	-0.01167	0.00	8.99E+09	-1775.	32408.	0.00
7.2000	0.2099	2448479.	8721.	-0.01034	0.00	8.49E+09	-1799.	41143.	0.00
7.6000	0.1636	2469615.	104.4833	-0.00894	0.00	8.31E+09	-1791.	52559.	0.00
8.0000	0.1241	2449482.	-8390.	-0.00753	0.00	8.48E+09	-1748.	67605.	0.00
8.4000	0.09131	2389072.	-16673.	-0.00620	0.00	8.96E+09	-1703.	89540.	0.00
8.8000	0.06464	2289418.	-24678.	-0.00500	0.00	9.92E+09	-1632.	121188.	0.00
9.2000	0.04329	2152165.	-31748.	-0.00401	0.00	1.17E+10	-1314.	145728.	0.00
9.6000	0.02616	1984633.	-36891.	-0.00320	0.00	1.28E+10	-828.6079	152064.	0.00
10.0000	0.01259	1798010.	-39877.	-0.00250	0.00	1.32E+10	-415.5217	158400.	0.00
10.4000	0.00216	1601814.	-41052.	-0.00188	0.00	1.33E+10	-74.1090	164736.	0.00
10.8000	-0.00549	1403910.	-40760.	-0.00134	0.00	1.33E+10	195.7715	171072.	0.00
11.2000	-0.01072	1210516.	-39340.	-8.71E-04	0.00	1.34E+10	396.1252	177408.	0.00
11.6000	-0.01386	1026250.	-37116.	-4.70E-04	0.00	1.34E+10	530.4089	183744.	0.00
12.0000	-0.01523	854204.	-34395.	-1.34E-04	0.00	1.34E+10	603.1533	190080.	0.00
12.4000	-0.01514	696054.	-31461.	6.13E-05	0.00	3.90E+10	619.6400	196416.	0.00
12.8000	-0.01464	552181.	-28489.	1.21E-04	0.00	8.05E+10	618.5018	202752.	0.00
13.2000	-0.01398	422559.	-25543.	1.50E-04	0.00	8.07E+10	609.1577	209088.	0.00
13.6000	-0.01321	306971.	-22658.	1.71E-04	0.00	8.09E+10	592.6635	215424.	0.00
14.0000	-0.01234	205039.	-19868.	1.87E-04	0.00	8.11E+10	570.0763	221760.	0.00
14.4000	-0.01141	116241.	-17198.	1.96E-04	0.00	8.13E+10	542.4355	228096.	0.00
14.8000	-0.01046	39940.	-14670.	2.01E-04	0.00	8.13E+10	510.7449	234432.	0.00
15.2000	-0.00949	-24593.	-12302.	2.01E-04	0.00	8.13E+10	475.9592	240768.	0.00
15.6000	-0.00853	-78159.	-10106.	1.98E-04	0.00	8.13E+10	438.9748	247104.	0.00
16.0000	-0.00759	-121612.	-8091.	1.92E-04	0.00	8.13E+10	400.6207	253440.	0.00
16.4000	-0.00668	-155834.	-6262.	1.84E-04	0.00	8.12E+10	361.6522	259776.	0.00
16.8000	-0.00582	-181724.	-4619.	1.74E-04	0.00	8.12E+10	322.7457	266112.	0.00
17.2000	-0.00501	-200178.	-3162.	1.63E-04	0.00	8.11E+10	284.4948	272448.	0.00
17.6000	-0.00426	-212077.	-1885.	1.50E-04	0.00	8.11E+10	247.4086	278784.	0.00

18.0000	-0.00357	-218276.	-782.8309	1.38E-04	0.00	8.11E+10	211.9143	285120.	0.00
18.4000	-0.00294	-219593.	153.8222	1.25E-04	0.00	8.11E+10	178.3579	291456.	0.00
18.8000	-0.00237	-216800.	934.7010	1.12E-04	0.00	8.11E+10	147.0083	297792.	0.00
19.2000	-0.00186	-210619.	1571.	9.92E-05	0.00	8.11E+10	118.0621	304128.	0.00
19.6000	-0.00142	-201719.	2074.	8.70E-05	0.00	8.11E+10	91.6488	310464.	0.00
20.0000	-0.00103	-190707.	2457.	7.54E-05	0.00	8.11E+10	67.8374	316800.	0.00
20.4000	-6.93E-04	-178133.	2732.	6.45E-05	0.00	8.12E+10	46.6439	323136.	0.00
20.8000	-4.08E-04	-164483.	2911.	5.44E-05	0.00	8.12E+10	28.0370	329472.	0.00
21.2000	-1.71E-04	-150188.	3007.	4.51E-05	0.00	8.12E+10	11.9451	335808.	0.00
21.6000	2.44E-05	-135617.	3031.	3.66E-05	0.00	8.12E+10	-1.7369	342144.	0.00
22.0000	1.81E-04	-121086.	2996.	2.91E-05	0.00	8.13E+10	-13.1414	348480.	0.00
22.4000	3.03E-04	-106858.	2910.	2.23E-05	0.00	8.13E+10	-22.4217	354816.	0.00
22.8000	3.95E-04	-93147.	2785.	1.64E-05	0.00	8.13E+10	-29.7464	361152.	0.00
23.2000	4.61E-04	-80121.	2629.	1.13E-05	0.00	8.13E+10	-35.2938	367488.	0.00
23.6000	5.04E-04	-67908.	2450.	6.94E-06	0.00	8.13E+10	-39.2466	373824.	0.00
24.0000	5.28E-04	-56600.	2256.	3.27E-06	0.00	8.13E+10	-41.7889	380160.	0.00
24.4000	5.35E-04	-46254.	2052.	2.32E-07	0.00	8.13E+10	-43.1027	386496.	0.00
24.8000	5.30E-04	-36902.	1844.	-2.22E-06	0.00	8.13E+10	-43.3642	392832.	0.00
25.2000	5.14E-04	-28548.	1638.	-4.15E-06	0.00	8.13E+10	-42.7419	399168.	0.00
25.6000	4.90E-04	-21179.	1436.	-5.62E-06	0.00	8.13E+10	-41.3944	405504.	0.00
26.0000	4.60E-04	-14764.	1242.	-6.68E-06	0.00	8.13E+10	-39.4688	411840.	0.00
26.4000	4.26E-04	-9259.	1058.	-7.39E-06	0.00	8.13E+10	-37.0995	418176.	0.00
26.8000	3.89E-04	-4608.	886.3510	-7.80E-06	0.00	8.13E+10	-34.4081	424512.	0.00
27.2000	3.51E-04	-749.7886	728.1657	-7.96E-06	0.00	8.13E+10	-31.5024	430848.	0.00
27.6000	3.13E-04	2382.	584.2157	-7.91E-06	0.00	8.13E+10	-28.4768	437184.	0.00
28.0000	2.75E-04	4859.	454.8817	-7.70E-06	0.00	8.13E+10	-25.4124	443520.	0.00
28.4000	2.39E-04	6749.	340.1857	-7.35E-06	0.00	8.13E+10	-22.3777	449856.	0.00
28.8000	2.04E-04	8124.	239.8498	-6.91E-06	0.00	8.13E+10	-19.4289	456192.	0.00
29.2000	1.72E-04	9052.	153.3530	-6.41E-06	0.00	8.13E+10	-16.6114	462528.	0.00
29.6000	1.43E-04	9597.	79.9823	-5.86E-06	0.00	8.13E+10	-13.9597	468864.	0.00
30.0000	1.16E-04	9820.	18.8803	-5.28E-06	0.00	8.13E+10	-11.4994	475200.	0.00
30.4000	9.22E-05	9778.	-30.9126	-4.71E-06	0.00	8.13E+10	-9.2476	481536.	0.00
30.8000	7.10E-05	9523.	-70.4206	-4.14E-06	0.00	8.13E+10	-7.2140	487872.	0.00
31.2000	5.25E-05	9102.	-100.6998	-3.59E-06	0.00	8.13E+10	-5.4023	494208.	0.00
31.6000	3.65E-05	8556.	-122.8107	-3.07E-06	0.00	8.13E+10	-3.8106	500544.	0.00
32.0000	2.30E-05	7923.	-137.7949	-2.58E-06	0.00	8.13E+10	-2.4328	506880.	0.00
32.4000	1.18E-05	7233.	-146.6562	-2.13E-06	0.00	8.13E+10	-1.2594	513216.	0.00
32.8000	2.57E-06	6515.	-150.3462	-1.73E-06	0.00	8.13E+10	-0.2781	519552.	0.00
33.2000	-4.79E-06	5790.	-149.7529	-1.36E-06	0.00	8.13E+10	0.5253	525888.	0.00
33.6000	-1.05E-05	5077.	-145.6931	-1.04E-06	0.00	8.13E+10	1.1663	532224.	0.00
34.0000	-1.48E-05	4391.	-138.9077	-7.63E-07	0.00	8.13E+10	1.6609	538560.	0.00
34.4000	-1.78E-05	3744.	-130.0598	-5.23E-07	0.00	8.13E+10	2.0257	544896.	0.00
34.8000	-1.98E-05	3143.	-119.7343	-3.20E-07	0.00	8.13E+10	2.2766	551232.	0.00
35.2000	-2.09E-05	2594.	-108.4398	-1.50E-07	0.00	8.13E+10	2.4294	557568.	0.00
35.6000	-2.13E-05	2102.	-96.6124	-1.19E-08	0.00	8.13E+10	2.4987	563904.	0.00
36.0000	-2.10E-05	1667.	-84.6200	9.94E-08	0.00	8.13E+10	2.4982	570240.	0.00
36.4000	-2.03E-05	1290.	-72.7678	1.87E-07	0.00	8.13E+10	2.4403	576576.	0.00
36.8000	-1.92E-05	968.3442	-61.3045	2.53E-07	0.00	8.13E+10	2.3361	582912.	0.00

37.2000	-1.79E-05	700.9947	-50.4287	3.03E-07	0.00	8.13E+10	2.1955	589248.	0.00
37.6000	-1.63E-05	484.2284	-40.2959	3.37E-07	0.00	8.13E+10	2.0266	595584.	0.00
38.0000	-1.46E-05	314.1543	-31.0248	3.61E-07	0.00	8.13E+10	1.8364	601920.	0.00
38.4000	-1.29E-05	186.3907	-22.7043	3.76E-07	0.00	8.13E+10	1.6305	608256.	0.00
38.8000	-1.10E-05	96.1932	-15.3997	3.84E-07	0.00	8.13E+10	1.4131	614592.	0.00
39.2000	-9.18E-06	38.5538	-9.1585	3.88E-07	0.00	8.13E+10	1.1874	620928.	0.00
39.6000	-7.31E-06	8.2716	-4.0160	3.90E-07	0.00	8.13E+10	0.9553	627264.	0.00
40.0000	-5.44E-06	0.00	0.00	3.90E-07	0.00	8.13E+10	0.7180	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 14:

```
Pile-head deflection             =     1.50000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =     -2646317. inch-lbs
Maximum shear force              =         80948. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             53
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 15

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.750000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	-2646304.	81437.	0.00	0.00	9.65E+08	0.00	0.00	0.00
0.4000	1.7184	-2256164.	81122.	-0.01220	0.00	9.65E+08	-65.6146	183.2815	0.00
0.8000	1.6329	-1867536.	80628.	-0.01815	0.00	1.32E+10	-139.9990	411.5335	0.00
1.2000	1.5441	-1482134.	79764.	-0.01876	0.00	1.33E+10	-220.2175	684.5501	0.00

1.6000	1.4528	-1101805.	78507.	-0.01922	0.00	1.34E+10	-303.1881	1002.	0.00
2.0000	1.3596	-728462.	76852.	-0.01955	0.00	1.35E+10	-386.4140	1364.	0.00
2.4000	1.2651	-364022.	74799.	-0.01969	0.00	8.08E+10	-469.0841	1780.	0.00
2.8000	1.1706	-10389.	72359.	-0.01970	0.00	8.13E+10	-547.5548	2245.	0.00
3.2000	1.0760	330627.	69547.	-0.01969	0.00	8.09E+10	-624.3868	2785.	0.00
3.6000	0.9815	657258.	66368.	-0.01966	0.00	8.03E+10	-700.0905	3424.	0.00
4.0000	0.8872	967759.	62834.	-0.01947	0.00	1.34E+10	-772.4388	4179.	0.00
4.4000	0.7946	1260463.	58864.	-0.01907	0.00	1.34E+10	-881.5088	5325.	0.00
4.8000	0.7041	1532857.	54324.	-0.01857	0.00	1.33E+10	-1010.	6887.	0.00
5.2000	0.6163	1781975.	49087.	-0.01797	0.00	1.32E+10	-1172.	9128.	0.00
5.6000	0.5316	2004089.	42986.	-0.01727	0.00	1.28E+10	-1370.	12368.	0.00
6.0000	0.4505	2194643.	35853.	-0.01642	0.00	1.11E+10	-1602.	17071.	0.00
6.4000	0.3740	2348281.	27687.	-0.01534	0.00	9.32E+09	-1800.	23105.	0.00
6.8000	0.3033	2460439.	18915.	-0.01403	0.00	8.39E+09	-1855.	29353.	0.00
7.2000	0.2393	2529864.	9960.	-0.01244	0.00	6.85E+09	-1876.	37634.	0.00
7.6000	0.1839	2556055.	986.3409	-0.01052	0.00	5.96E+09	-1863.	48618.	0.00
8.0000	0.1383	2539333.	-7840.	-0.00855	0.00	6.47E+09	-1815.	62995.	0.00
8.4000	0.1018	2480789.	-16442.	-0.00688	0.00	8.20E+09	-1769.	83414.	0.00
8.8000	0.07223	2381490.	-24758.	-0.00552	0.00	9.02E+09	-1696.	112720.	0.00
9.2000	0.04876	2243109.	-32382.	-0.00437	0.00	1.05E+10	-1480.	145728.	0.00
9.6000	0.03023	2070620.	-38234.	-0.00346	0.00	1.26E+10	-957.8346	152064.	0.00
10.0000	0.01551	1876061.	-41761.	-0.00273	0.00	1.31E+10	-511.7879	158400.	0.00
10.4000	0.00407	1669712.	-43325.	-0.00208	0.00	1.33E+10	-139.7422	164736.	0.00
10.8000	-0.00446	1460142.	-43278.	-0.00151	0.00	1.33E+10	159.0947	171072.	0.00
11.2000	-0.01047	1254238.	-41968.	-0.00103	0.00	1.34E+10	387.0495	177408.	0.00
11.6000	-0.01432	1057252.	-39723.	-6.12E-04	0.00	1.34E+10	548.0563	183744.	0.00
12.0000	-0.01634	872893.	-36855.	-2.67E-04	0.00	1.34E+10	647.2426	190080.	0.00
12.4000	-0.01688	703447.	-33644.	1.27E-05	0.00	1.37E+10	690.5643	196416.	0.00
12.8000	-0.01622	549911.	-30342.	1.53E-04	0.00	8.05E+10	685.2409	202752.	0.00
13.2000	-0.01541	412163.	-27086.	1.81E-04	0.00	8.07E+10	671.3356	209088.	0.00
13.6000	-0.01448	289882.	-23915.	2.02E-04	0.00	8.10E+10	650.0118	215424.	0.00
14.0000	-0.01347	182578.	-20861.	2.16E-04	0.00	8.12E+10	622.4262	221760.	0.00
14.4000	-0.01241	89615.	-17952.	2.24E-04	0.00	8.13E+10	589.7088	228096.	0.00
14.8000	-0.01132	10238.	-15210.	2.27E-04	0.00	8.13E+10	552.9457	234432.	0.00
15.2000	-0.01023	-56399.	-12651.	2.26E-04	0.00	8.13E+10	513.1645	240768.	0.00
15.6000	-0.00916	-111212.	-10288.	2.21E-04	0.00	8.13E+10	471.3256	247104.	0.00
16.0000	-0.00811	-155166.	-8129.	2.13E-04	0.00	8.12E+10	428.3129	253440.	0.00
16.4000	-0.00711	-189252.	-6177.	2.03E-04	0.00	8.12E+10	384.9282	259776.	0.00
16.8000	-0.00617	-214469.	-4433.	1.91E-04	0.00	8.11E+10	341.8837	266112.	0.00
17.2000	-0.00528	-231809.	-2893.	1.77E-04	0.00	8.11E+10	299.8003	272448.	0.00
17.6000	-0.00446	-242241.	-1551.	1.63E-04	0.00	8.10E+10	259.2074	278784.	0.00
18.0000	-0.00371	-246702.	-399.9549	1.49E-04	0.00	8.10E+10	220.5430	285120.	0.00
18.4000	-0.00303	-246081.	571.3256	1.34E-04	0.00	8.10E+10	184.1572	291456.	0.00
18.8000	-0.00242	-241217.	1374.	1.20E-04	0.00	8.10E+10	150.3167	297792.	0.00
19.2000	-0.00188	-232890.	2021.	1.06E-04	0.00	8.11E+10	119.2105	304128.	0.00
19.6000	-0.00141	-221816.	2525.	9.24E-05	0.00	8.11E+10	90.9562	310464.	0.00
20.0000	-9.94E-04	-208647.	2901.	7.97E-05	0.00	8.11E+10	65.6068	316800.	0.00
20.4000	-6.41E-04	-193966.	3162.	6.78E-05	0.00	8.11E+10	43.1585	323136.	0.00

20.8000	-3.43E-04	-178291.	3322.	5.68E-05	0.00	8.12E+10	23.5587	329472.	0.00
21.2000	-9.60E-05	-162072.	3395.	4.67E-05	0.00	8.12E+10	6.7132	335808.	0.00
21.6000	1.05E-04	-145700.	3393.	3.76E-05	0.00	8.12E+10	-7.5064	342144.	0.00
22.0000	2.65E-04	-129500.	3329.	2.95E-05	0.00	8.12E+10	-19.2565	348480.	0.00
22.4000	3.88E-04	-113744.	3214.	2.23E-05	0.00	8.13E+10	-28.7139	354816.	0.00
22.8000	4.79E-04	-98649.	3058.	1.60E-05	0.00	8.13E+10	-36.0709	361152.	0.00
23.2000	5.42E-04	-84385.	2872.	1.06E-05	0.00	8.13E+10	-41.5282	367488.	0.00
23.6000	5.82E-04	-71079.	2664.	6.05E-06	0.00	8.13E+10	-45.2900	373824.	0.00
24.0000	6.01E-04	-58815.	2441.	2.22E-06	0.00	8.13E+10	-47.5601	380160.	0.00
24.4000	6.03E-04	-47648.	2210.	-9.25E-07	0.00	8.13E+10	-48.5386	386496.	0.00
24.8000	5.92E-04	-37599.	1977.	-3.44E-06	0.00	8.13E+10	-48.4184	392832.	0.00
25.2000	5.70E-04	-28665.	1747.	-5.40E-06	0.00	8.13E+10	-47.3827	399168.	0.00
25.6000	5.40E-04	-20823.	1524.	-6.86E-06	0.00	8.13E+10	-45.6034	405504.	0.00
26.0000	5.04E-04	-14032.	1311.	-7.89E-06	0.00	8.13E+10	-43.2387	411840.	0.00
26.4000	4.64E-04	-8237.	1110.	-8.54E-06	0.00	8.13E+10	-40.4330	418176.	0.00
26.8000	4.22E-04	-3374.	923.6481	-8.89E-06	0.00	8.13E+10	-37.3157	424512.	0.00
27.2000	3.79E-04	629.9089	752.4871	-8.97E-06	0.00	8.13E+10	-34.0013	430848.	0.00
27.6000	3.36E-04	3850.	597.4696	-8.83E-06	0.00	8.13E+10	-30.5893	437184.	0.00
28.0000	2.94E-04	6366.	458.8600	-8.53E-06	0.00	8.13E+10	-27.1647	443520.	0.00
28.4000	2.54E-04	8255.	336.5482	-8.10E-06	0.00	8.13E+10	-23.7986	449856.	0.00
28.8000	2.16E-04	9596.	230.1139	-7.57E-06	0.00	8.13E+10	-20.5490	456192.	0.00
29.2000	1.81E-04	10464.	138.8879	-6.98E-06	0.00	8.13E+10	-17.4618	462528.	0.00
29.6000	1.49E-04	10930.	62.0070	-6.35E-06	0.00	8.13E+10	-14.5719	468864.	0.00
30.0000	1.20E-04	11060.	-1.5349	-5.70E-06	0.00	8.13E+10	-11.9039	475200.	0.00
30.4000	9.44E-05	10915.	-52.8414	-5.05E-06	0.00	8.13E+10	-9.4738	481536.	0.00
30.8000	7.17E-05	10552.	-93.0747	-4.42E-06	0.00	8.13E+10	-7.2900	487872.	0.00
31.2000	5.20E-05	10022.	-123.4202	-3.81E-06	0.00	8.13E+10	-5.3540	494208.	0.00
31.6000	3.51E-05	9367.	-145.0585	-3.24E-06	0.00	8.13E+10	-3.6620	500544.	0.00
32.0000	2.09E-05	8629.	-159.1410	-2.71E-06	0.00	8.13E+10	-2.2057	506880.	0.00
32.4000	9.10E-06	7840.	-166.7702	-2.22E-06	0.00	8.13E+10	-0.9732	513216.	0.00
32.8000	-4.62E-07	7028.	-168.9859	-1.79E-06	0.00	8.13E+10	0.05000	519552.	0.00
33.2000	-8.03E-06	6217.	-166.7533	-1.39E-06	0.00	8.13E+10	0.8803	525888.	0.00
33.6000	-1.38E-05	5427.	-160.9560	-1.05E-06	0.00	8.13E+10	1.5352	532224.	0.00
34.0000	-1.81E-05	4672.	-152.3921	-7.52E-07	0.00	8.13E+10	2.0330	538560.	0.00
34.4000	-2.11E-05	3964.	-141.7724	-4.98E-07	0.00	8.13E+10	2.3918	544896.	0.00
34.8000	-2.29E-05	3311.	-129.7214	-2.83E-07	0.00	8.13E+10	2.6294	551232.	0.00
35.2000	-2.38E-05	2719.	-116.7797	-1.05E-07	0.00	8.13E+10	2.7629	557568.	0.00
35.6000	-2.39E-05	2190.	-103.4091	4.00E-08	0.00	8.13E+10	2.8082	563904.	0.00
36.0000	-2.34E-05	1726.	-89.9971	1.56E-07	0.00	8.13E+10	2.7801	570240.	0.00
36.4000	-2.24E-05	1326.	-76.8641	2.46E-07	0.00	8.13E+10	2.6920	576576.	0.00
36.8000	-2.10E-05	988.2525	-64.2701	3.14E-07	0.00	8.13E+10	2.5556	582912.	0.00
37.2000	-1.94E-05	709.1961	-52.4219	3.64E-07	0.00	8.13E+10	2.3812	589248.	0.00
37.6000	-1.75E-05	485.0018	-41.4812	3.99E-07	0.00	8.13E+10	2.1775	595584.	0.00
38.0000	-1.56E-05	310.9770	-31.5710	4.23E-07	0.00	8.13E+10	1.9517	601920.	0.00
38.4000	-1.35E-05	181.9199	-22.7840	4.37E-07	0.00	8.13E+10	1.7095	608256.	0.00
38.8000	-1.14E-05	92.2507	-15.1884	4.45E-07	0.00	8.13E+10	1.4553	614592.	0.00
39.2000	-9.21E-06	36.1113	-8.8348	4.49E-07	0.00	8.13E+10	1.1920	620928.	0.00
39.6000	-7.05E-06	7.4367	-3.7616	4.50E-07	0.00	8.13E+10	0.9218	627264.	0.00

40.0000	-4.89E-06	0.00	0.00	4.51E-07	0.00	8.13E+10	0.6455	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 15:

```
Pile-head deflection              =     1.75000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -2646304. inch-lbs
Maximum shear force               =         81437. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             46
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 16

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     2.000000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	-2646307.	81498.	0.00	0.00	8.37E+08	0.00	0.00	0.00
0.4000	1.9636	-2255873.	81183.	-0.01406	0.00	8.37E+08	-65.6146	160.3960	0.00
0.8000	1.8651	-1866952.	80689.	-0.02086	0.00	1.32E+10	-139.9990	360.3067	0.00
1.2000	1.7633	-1481256.	79825.	-0.02147	0.00	1.33E+10	-220.2175	599.4758	0.00
1.6000	1.6589	-1100634.	78569.	-0.02194	0.00	1.34E+10	-303.1880	877.2525	0.00
2.0000	1.5527	-726998.	76914.	-0.02226	0.00	1.35E+10	-386.4139	1195.	0.00
2.4000	1.4452	-362264.	74860.	-0.02240	0.00	8.08E+10	-469.0840	1558.	0.00
2.8000	1.3376	-8338.	72420.	-0.02241	0.00	8.13E+10	-547.5547	1965.	0.00
3.2000	1.2300	332972.	69608.	-0.02240	0.00	8.09E+10	-624.3865	2437.	0.00
3.6000	1.1225	659897.	66429.	-0.02238	0.00	8.03E+10	-700.0902	2994.	0.00
4.0000	1.0152	970691.	62905.	-0.02218	0.00	1.34E+10	-768.4211	3633.	0.00

4.4000	0.9096	1263781.	59057.	-0.02178	0.00	1.34E+10	-834.5811	4404.	0.00
4.8000	0.8061	1537642.	54778.	-0.02128	0.00	1.33E+10	-948.3817	5647.	0.00
5.2000	0.7053	1789653.	49857.	-0.02067	0.00	1.32E+10	-1102.	7502.	0.00
5.6000	0.6077	2016265.	44100.	-0.01997	0.00	1.27E+10	-1296.	10239.	0.00
6.0000	0.5136	2213014.	37324.	-0.01910	0.00	1.08E+10	-1527.	14274.	0.00
6.4000	0.4243	2374572.	29330.	-0.01798	0.00	9.09E+09	-1803.	20402.	0.00
6.8000	0.3410	2494579.	20386.	-0.01661	0.00	8.02E+09	-1923.	27068.	0.00
7.2000	0.2649	2570281.	11119.	-0.01474	0.00	5.48E+09	-1938.	35131.	0.00
7.6000	0.1995	2601322.	1873.	-0.01223	0.00	4.53E+09	-1914.	46046.	0.00
8.0000	0.1474	2588263.	-7174.	-0.00959	0.00	4.91E+09	-1856.	60430.	0.00
8.4000	0.1074	2532446.	-15954.	-0.00742	0.00	6.69E+09	-1802.	80527.	0.00
8.8000	0.07617	2435103.	-24427.	-0.00583	0.00	8.59E+09	-1728.	108883.	0.00
9.2000	0.05145	2297949.	-32322.	-0.00459	0.00	9.83E+09	-1562.	145728.	0.00
9.6000	0.03211	2124808.	-38512.	-0.00361	0.00	1.21E+10	-1017.	152064.	0.00
10.0000	0.01680	1928230.	-42284.	-0.00283	0.00	1.30E+10	-554.4760	158400.	0.00
10.4000	0.00492	1718877.	-44020.	-0.00216	0.00	1.32E+10	-168.7349	164736.	0.00
10.8000	-0.00398	1505637.	-44085.	-0.00158	0.00	1.33E+10	141.8397	171072.	0.00
11.2000	-0.01027	1295664.	-42833.	-0.00108	0.00	1.33E+10	379.4952	177408.	0.00
11.6000	-0.01432	1094435.	-40607.	-6.48E-04	0.00	1.34E+10	548.1447	183744.	0.00
12.0000	-0.01649	905836.	-37725.	-2.90E-04	0.00	1.34E+10	652.9420	190080.	0.00
12.4000	-0.01710	732280.	-34478.	2.15E-06	0.00	1.35E+10	699.9045	196416.	0.00
12.8000	-0.01647	574850.	-31129.	1.50E-04	0.00	8.04E+10	695.5988	202752.	0.00
13.2000	-0.01567	433446.	-27821.	1.80E-04	0.00	8.07E+10	682.4411	209088.	0.00
13.6000	-0.01474	307766.	-24595.	2.02E-04	0.00	8.09E+10	661.6151	215424.	0.00
14.0000	-0.01373	197330.	-21485.	2.17E-04	0.00	8.11E+10	634.3002	221760.	0.00
14.4000	-0.01266	101507.	-18519.	2.26E-04	0.00	8.13E+10	601.6499	228096.	0.00
14.8000	-0.01156	19547.	-15720.	2.29E-04	0.00	8.13E+10	564.7743	234432.	0.00
15.2000	-0.01046	-49401.	-13105.	2.28E-04	0.00	8.13E+10	524.7243	240768.	0.00
15.6000	-0.00937	-106259.	-10687.	2.24E-04	0.00	8.13E+10	482.4835	247104.	0.00
16.0000	-0.00831	-152000.	-8476.	2.16E-04	0.00	8.12E+10	438.9583	253440.	0.00
16.4000	-0.00730	-187629.	-6475.	2.06E-04	0.00	8.12E+10	394.9723	259776.	0.00
16.8000	-0.00634	-214157.	-4684.	1.94E-04	0.00	8.11E+10	351.2587	266112.	0.00
17.2000	-0.00543	-232591.	-3100.	1.81E-04	0.00	8.11E+10	308.4576	272448.	0.00
17.6000	-0.00460	-243920.	-1719.	1.67E-04	0.00	8.10E+10	267.1162	278784.	0.00
18.0000	-0.00383	-249093.	-531.4088	1.52E-04	0.00	8.10E+10	227.6886	285120.	0.00
18.4000	-0.00314	-249021.	472.3379	1.37E-04	0.00	8.10E+10	190.5392	291456.	0.00
18.8000	-0.00251	-244559.	1304.	1.23E-04	0.00	8.10E+10	155.9472	297792.	0.00
19.2000	-0.00196	-236504.	1976.	1.09E-04	0.00	8.11E+10	124.1122	304128.	0.00
19.6000	-0.00147	-225589.	2502.	9.49E-05	0.00	8.11E+10	95.1604	310464.	0.00
20.0000	-0.00105	-212482.	2897.	8.19E-05	0.00	8.11E+10	69.1522	316800.	0.00
20.4000	-6.85E-04	-197781.	3173.	6.98E-05	0.00	8.11E+10	46.0891	323136.	0.00
20.8000	-3.78E-04	-182018.	3346.	5.86E-05	0.00	8.12E+10	25.9221	329472.	0.00
21.2000	-1.22E-04	-165659.	3429.	4.83E-05	0.00	8.12E+10	8.5596	335808.	0.00
21.6000	8.59E-05	-149102.	3435.	3.90E-05	0.00	8.12E+10	-6.1255	342144.	0.00
22.0000	2.52E-04	-132686.	3376.	3.07E-05	0.00	8.12E+10	-18.2892	348480.	0.00
22.4000	3.80E-04	-116692.	3265.	2.33E-05	0.00	8.13E+10	-28.1093	354816.	0.00
22.8000	4.76E-04	-101345.	3111.	1.69E-05	0.00	8.13E+10	-35.7793	361152.	0.00
23.2000	5.42E-04	-86822.	2926.	1.13E-05	0.00	8.13E+10	-41.5026	367488.	0.00

23.6000	5.84E-04	-73256.	2717.	6.58E-06	0.00	8.13E+10	-45.4859	373824.	0.00
24.0000	6.05E-04	-60738.	2493.	2.62E-06	0.00	8.13E+10	-47.9362	380160.	0.00
24.4000	6.09E-04	-49324.	2260.	-6.23E-07	0.00	8.13E+10	-49.0569	386496.	0.00
24.8000	5.99E-04	-39041.	2025.	-3.23E-06	0.00	8.13E+10	-49.0444	392832.	0.00
25.2000	5.78E-04	-29887.	1792.	-5.27E-06	0.00	8.13E+10	-48.0858	399168.	0.00
25.6000	5.49E-04	-21842.	1565.	-6.79E-06	0.00	8.13E+10	-46.3563	405504.	0.00
26.0000	5.13E-04	-14864.	1348.	-7.88E-06	0.00	8.13E+10	-44.0180	411840.	0.00
26.4000	4.73E-04	-8901.	1143.	-8.58E-06	0.00	8.13E+10	-41.2186	418176.	0.00
26.8000	4.31E-04	-3887.	953.1014	-8.95E-06	0.00	8.13E+10	-38.0908	424512.	0.00
27.2000	3.87E-04	248.8769	778.2786	-9.06E-06	0.00	8.13E+10	-34.7521	430848.	0.00
27.6000	3.44E-04	3584.	619.7419	-8.95E-06	0.00	8.13E+10	-31.3049	437184.	0.00
28.0000	3.01E-04	6198.	477.8019	-8.66E-06	0.00	8.13E+10	-27.8368	443520.	0.00
28.4000	2.61E-04	8171.	352.3826	-8.24E-06	0.00	8.13E+10	-24.4212	449856.	0.00
28.8000	2.22E-04	9581.	243.0877	-7.71E-06	0.00	8.13E+10	-21.1183	456192.	0.00
29.2000	1.87E-04	10505.	149.2623	-7.12E-06	0.00	8.13E+10	-17.9756	462528.	0.00
29.6000	1.54E-04	11014.	70.0500	-6.48E-06	0.00	8.13E+10	-15.0295	468864.	0.00
30.0000	1.24E-04	11177.	4.4446	-5.83E-06	0.00	8.13E+10	-12.3061	475200.	0.00
30.4000	9.79E-05	11057.	-48.6633	-5.17E-06	0.00	8.13E+10	-9.8222	481536.	0.00
30.8000	7.46E-05	10710.	-90.4459	-4.53E-06	0.00	8.13E+10	-7.5872	487872.	0.00
31.2000	5.44E-05	10189.	-122.1024	-3.91E-06	0.00	8.13E+10	-5.6031	494208.	0.00
31.6000	3.71E-05	9538.	-144.8295	-3.33E-06	0.00	8.13E+10	-3.8666	500544.	0.00
32.0000	2.24E-05	8798.	-159.7965	-2.79E-06	0.00	8.13E+10	-2.3697	506880.	0.00
32.4000	1.03E-05	8004.	-168.1253	-2.29E-06	0.00	8.13E+10	-1.1006	513216.	0.00
32.8000	4.16E-07	7184.	-170.8748	-1.85E-06	0.00	8.13E+10	-0.04499	519552.	0.00
33.2000	-7.43E-06	6363.	-169.0297	-1.45E-06	0.00	8.13E+10	0.8137	525888.	0.00
33.6000	-1.35E-05	5562.	-163.4929	-1.09E-06	0.00	8.13E+10	1.4933	532224.	0.00
34.0000	-1.79E-05	4794.	-155.0803	-7.89E-07	0.00	8.13E+10	2.0120	538560.	0.00
34.4000	-2.10E-05	4073.	-144.5198	-5.27E-07	0.00	8.13E+10	2.3883	544896.	0.00
34.8000	-2.30E-05	3407.	-132.4513	-3.06E-07	0.00	8.13E+10	2.6402	551232.	0.00
35.2000	-2.40E-05	2801.	-119.4301	-1.23E-07	0.00	8.13E+10	2.7853	557568.	0.00
35.6000	-2.42E-05	2260.	-105.9303	2.64E-08	0.00	8.13E+10	2.8397	563904.	0.00
36.0000	-2.37E-05	1784.	-92.3506	1.46E-07	0.00	8.13E+10	2.8185	570240.	0.00
36.4000	-2.28E-05	1373.	-79.0212	2.39E-07	0.00	8.13E+10	2.7354	576576.	0.00
36.8000	-2.14E-05	1026.	-66.2098	3.10E-07	0.00	8.13E+10	2.6026	582912.	0.00
37.2000	-1.98E-05	737.8640	-54.1302	3.62E-07	0.00	8.13E+10	2.4306	589248.	0.00
37.6000	-1.80E-05	506.0392	-42.9490	3.98E-07	0.00	8.13E+10	2.2283	595584.	0.00
38.0000	-1.60E-05	325.5539	-32.7936	4.23E-07	0.00	8.13E+10	2.0031	601920.	0.00
38.4000	-1.39E-05	191.2210	-23.7594	4.38E-07	0.00	8.13E+10	1.7611	608256.	0.00
38.8000	-1.18E-05	97.4635	-15.9170	4.47E-07	0.00	8.13E+10	1.5066	614592.	0.00
39.2000	-9.61E-06	38.4182	-9.3181	4.51E-07	0.00	8.13E+10	1.2429	620928.	0.00
39.6000	-7.44E-06	8.0101	-4.0019	4.52E-07	0.00	8.13E+10	0.9721	627264.	0.00
40.0000	-5.27E-06	0.00	0.00	4.52E-07	0.00	8.13E+10	0.6953	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the

magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 16:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =     -2646307. inch-lbs
Maximum shear force               =        81498. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             67
Number of zero deflection points =              3
```

Summary of Pile-head Responses for Conventional Analyses

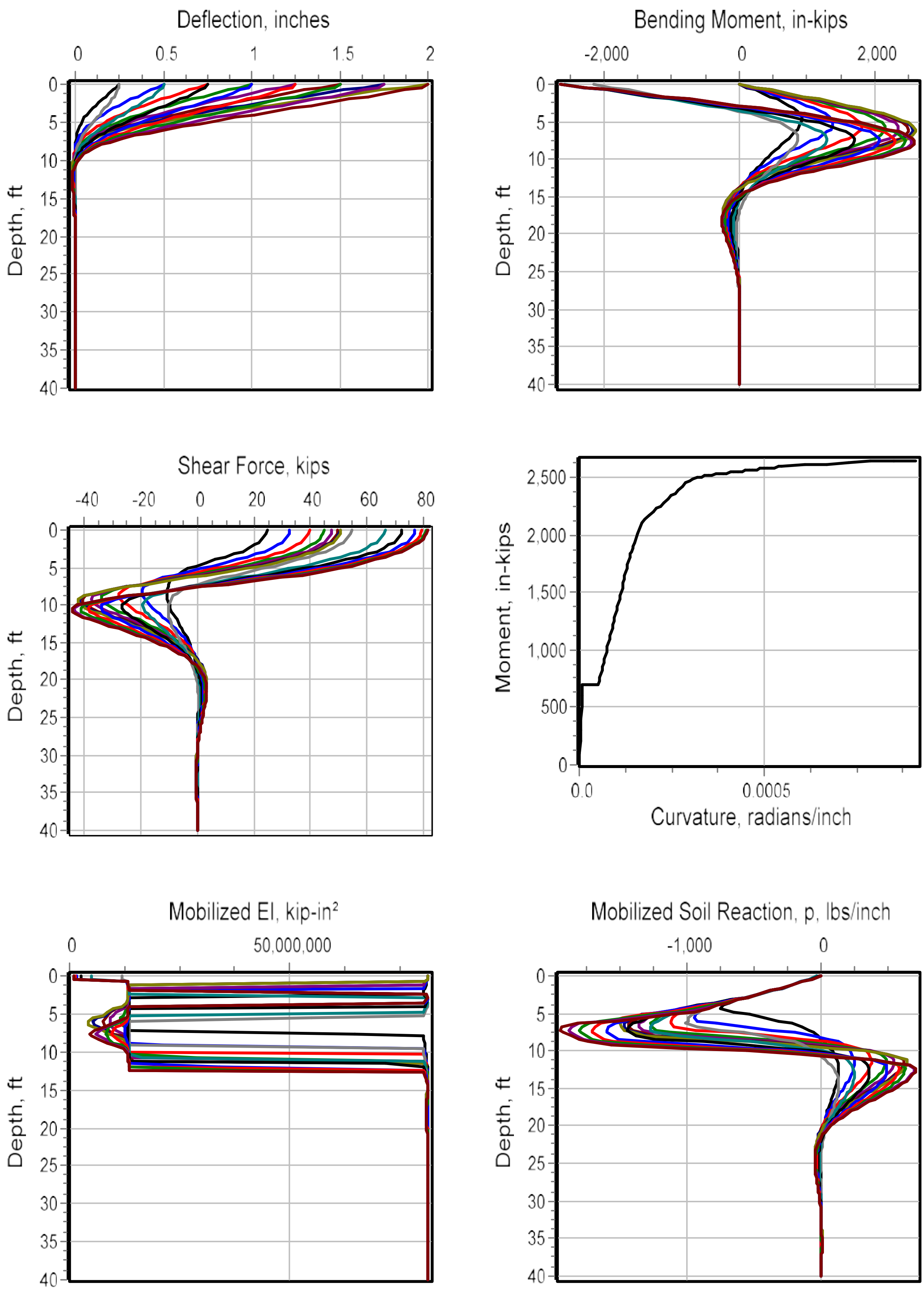
Definitions of Pile-head Loading Conditions:

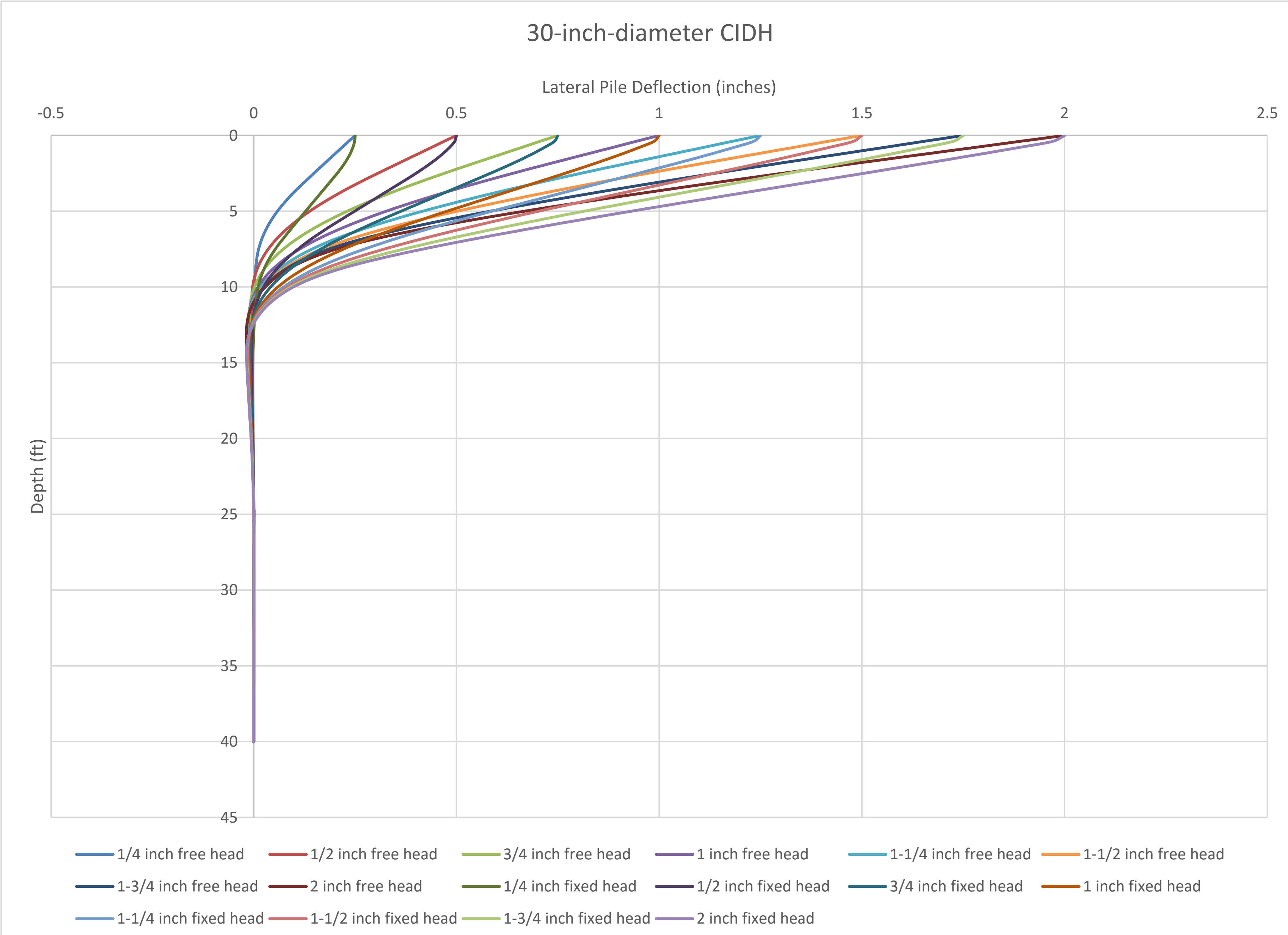
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

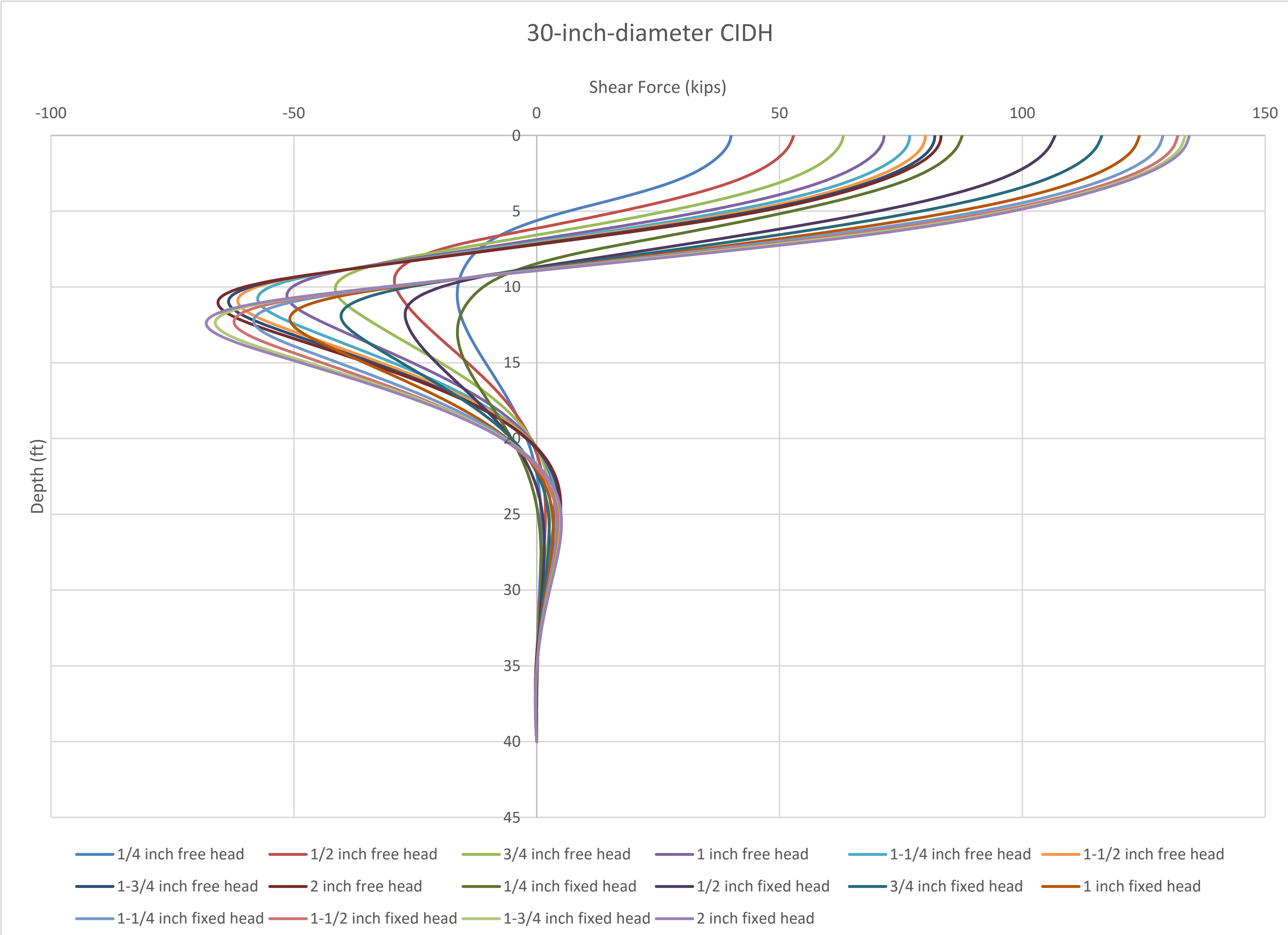
Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	y, in	0.2500	M, in-lb	0.00	0.00	0.2500	-0.00407	24734.	928378.
2	y, in	0.5000	M, in-lb	0.00	0.00	0.5000	-0.00771	32850.	1388985.
3	y, in	0.7500	M, in-lb	0.00	0.00	0.7500	-0.01105	39580.	1815654.
4	y, in	1.0000	M, in-lb	0.00	0.00	1.0000	-0.01421	44831.	2166347.
5	y, in	1.2500	M, in-lb	0.00	0.00	1.2500	-0.01745	47693.	2364730.
6	y, in	1.5000	M, in-lb	0.00	0.00	1.5000	-0.02081	49656.	2511263.
7	y, in	1.7500	M, in-lb	0.00	0.00	1.7500	-0.02408	50369.	2574588.
8	y, in	2.0000	M, in-lb	0.00	0.00	2.0000	-0.02735	50735.	2613579.
9	y, in	0.2500	S, rad	0.00	0.00	0.2500	0.00	54520.	-2144716.
10	y, in	0.5000	S, rad	0.00	0.00	0.5000	0.00	66352.	-2587435.
11	y, in	0.7500	S, rad	0.00	0.00	0.7500	0.00	72462.	-2646372.
12	y, in	1.0000	S, rad	0.00	0.00	1.0000	0.00	77026.	-2646343.
13	y, in	1.2500	S, rad	0.00	0.00	1.2500	0.00	79487.	-2646317.
14	y, in	1.5000	S, rad	0.00	0.00	1.5000	0.00	80948.	-2646317.
15	y, in	1.7500	S, rad	0.00	0.00	1.7500	0.00	81437.	-2646304.
16	y, in	2.0000	S, rad	0.00	0.00	2.0000	0.00	81498.	-2646307.

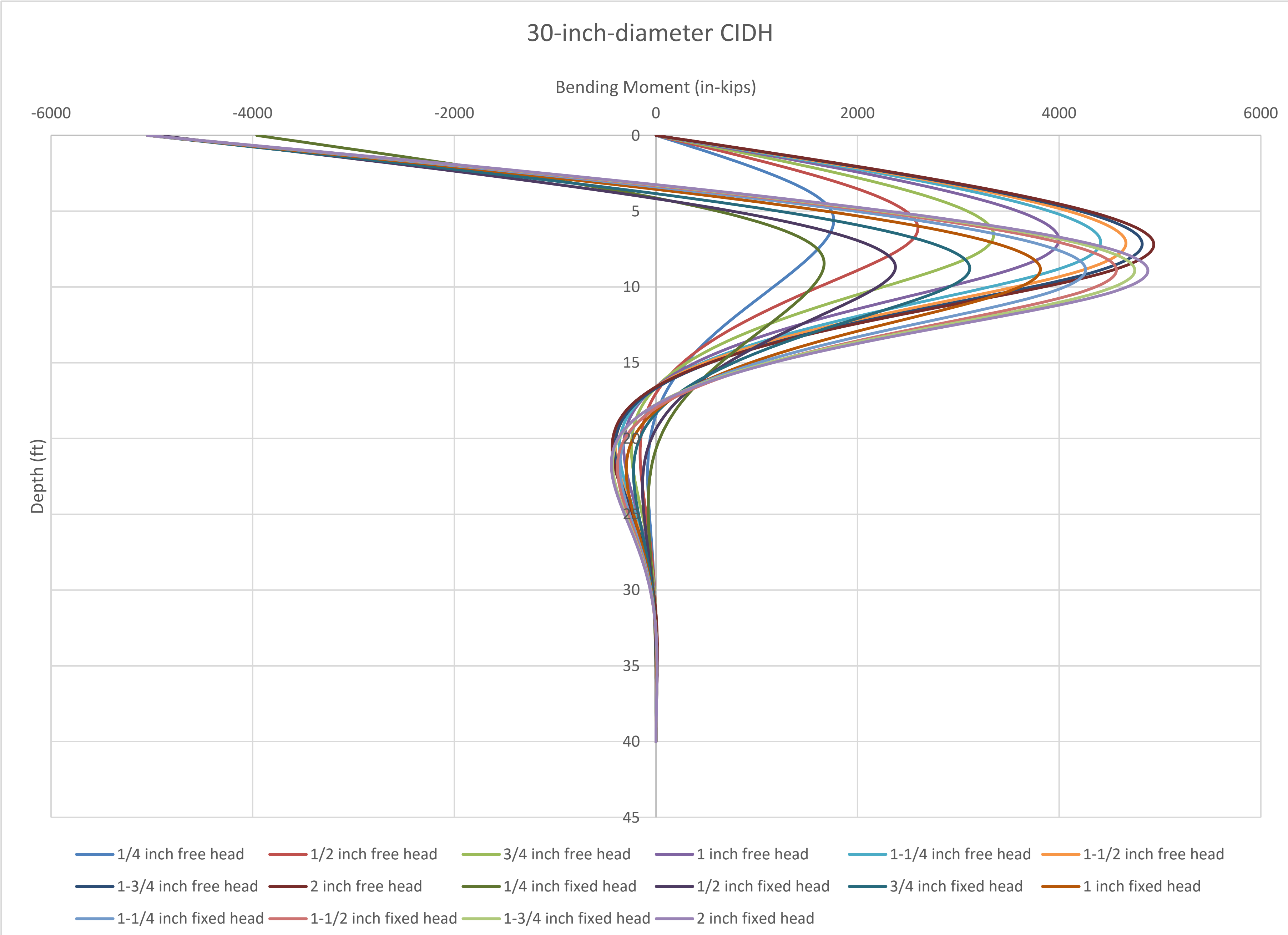
```
Maximum pile-head deflection = 2.0000000000 inches
Maximum pile-head rotation   = -0.0273495979 radians = -1.567017 deg.

The analysis ended normally.
```


Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Moment, in-kips
Curvature, radians/inch
Mobilized EI, kip-in²
Depth, ft
Mobilized Soil Reaction, p, lbs/inch
Depth, ft


30-inch-diameter CIDH
Lateral Pile Deflection (inches)
-0.5
0
0.5
1
1.5
2
2.5
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head


30-inch-diameter CIDH
Shear Force (kips)
-100
-50
0
50
100
150
0
5
10
15
20
25
30
35
40
45
Depth (ft)
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head


30-inch-diameter CIDH
Bending Moment (in-kips)
-6000
-4000
-2000
0
2000
4000
6000
0
5
10
15
20
25
30
35
40
45
Depth (ft)
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head

==

LPile for Windows(Beta), Version 2018-10.008

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

==

This copy of LPile is being used by:

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Files Used for Analysis

Path to file locations:
\Users\ckim\Documents\riverside arena\

Name of input data file:
RsdArena 30 CIDH 20201028.lp10

Name of output report file:
RsdArena 30 CIDH 20201028.lp10

Name of plot output file:
RsdArena 30 CIDH 20201028.lp10

Name of runtime message file:
RsdArena 30 CIDH 20201028.lp10

Date and Time of Analysis

Date: October 28, 2020   Time: 12:25:06

```
--------------------------------------------------------------------------------
                                 Problem Title
--------------------------------------------------------------------------------

Project Name: Riverside Arena


Job Number: 12915.001


Client: CAA ICON


Engineer: ck


Description: 30 inch CIDH





--------------------------------------------------------------------------------
                         Program Options and Settings
--------------------------------------------------------------------------------

Computational Options:
 - Use unfactored loads in computations (conventional analysis)
Engineering Units Used for Data Input and Computations:
 - US Customary System Units (pounds, feet, inches)

Analysis Control Options:
 - Maximum number of iterations allowed                =          500
 - Deflection tolerance for convergence                =   1.0000E-05 in
 - Maximum allowable deflection                        =     100.0000 in
 - Number of pile increments                           =          100

Loading Type and Number of Cycles of Loading:
 - Static loading specified

 - Use of p-y modification factors for p-y curves not selected
 - Analysis uses layering correction (Method of Georgiadis)
 - No distributed lateral loads are entered
 - Loading by lateral soil movements acting on pile not selected
 - Input of shear resistance at the pile tip not selected
 - Input of moment resistance at the pile tip not selected
 - Computation of pile-head foundation stiffness matrix not selected
 - Push-over analysis of pile not selected
 - Buckling analysis of pile not selected
```

Output Options:
- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 40.000 ft
Depth of ground surface below top of pile = 0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	30.0000
2	40.000	30.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile
Length of section = 40.000000 ft
Shaft Diameter = 30.000000 in
Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is cemented silt with cohesion and friction

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	100.000000 ft
Effective unit weight at top of layer	=	120.000000 pcf
Effective unit weight at bottom of layer	=	120.000000 pcf
Undrained cohesion at top of layer	=	100.000000 psf
Undrained cohesion at bottom of layer	=	100.000000 psf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Epsilon-50 at top of layer	=	0.0000
Epsilon-50 at bottom of layer	=	0.0000
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Default values for Epsilon-50 will be computed for this layer.
NOTE: Default values for subgrade k will be computed for this layer.

(Depth of the lowest soil layer extends 60.000 ft below the pile tip)

Summary of Input Soil Properties

Layer Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Cemented	0.00	120.0000	100.0000	30.0000	default	default
	Silt	100.0000	120.0000	100.0000	30.0000	default	default

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 16

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	4	y = 0.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
2	4	y = 0.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
3	4	y = 0.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
4	4	y = 1.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
5	4	y = 1.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
6	4	y = 1.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
7	4	y = 1.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
8	4	y = 2.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
9	5	y = 0.250000 in	S = 0.0000 in/in	0.0000000	N.A.
10	5	y = 0.500000 in	S = 0.0000 in/in	0.0000000	N.A.
11	5	y = 0.750000 in	S = 0.0000 in/in	0.0000000	N.A.
12	5	y = 1.000000 in	S = 0.0000 in/in	0.0000000	N.A.
13	5	y = 1.250000 in	S = 0.0000 in/in	0.0000000	N.A.
14	5	y = 1.500000 in	S = 0.0000 in/in	0.0000000	N.A.
15	5	y = 1.750000 in	S = 0.0000 in/in	0.0000000	N.A.
16	5	y = 2.000000 in	S = 0.0000 in/in	0.0000000	N.A.

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section = 40.000000 ft

Shaft Diameter	=	30.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	3.000000 in
Number of Reinforcing Bars	=	9 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	706.858347 sq. in.
Total Area of Reinforcing Steel	=	7.110000 sq. in.
Area Ratio of Steel Reinforcement	=	1.01 percent
Edge-to-Edge Bar Spacing	=	6.866463 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	9.16
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	3400.530 kips
Tensile Load for Cracking of Concrete	=	-347.979 kips
Nominal Axial Tensile Capacity	=	-426.600 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.000000	0.790000	11.500000	0.00000
2	1.000000	0.790000	8.809511	7.392058
3	1.000000	0.790000	1.996954	11.325289
4	1.000000	0.790000	-5.750000	9.959292
5	1.000000	0.790000	-10.806465	3.933232
6	1.000000	0.790000	-10.806465	-3.933232
7	1.000000	0.790000	-5.750000	-9.959292
8	1.000000	0.790000	1.996954	-11.325289
9	1.000000	0.790000	8.809511	-7.392058

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 6.866 inches
between bars 3 and 4.

Ratio of bar spacing to maximum aggregate size = 9.16

Concrete Properties:

Compressive Strength of Concrete	=	5000. psi
Modulus of Elasticity of Concrete	=	4030509. psi
Modulus of Rupture of Concrete	=	-530.330086 psi
Compression Strain at Peak Stress	=	0.002109

```
Tensile Strain at Fracture of Concrete              =   -0.0001150
Maximum Coarse Aggregate Size                       =     0.750000 in
```

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force =   0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
0.00000125	249.2689470	199415158.	15.0000711	0.00001875	-0.00001875	0.0876322	0.5383151	
0.00000250	497.1309075	198852363.	15.0000714	0.00003750	-0.00003750	0.1744897	1.0766302	
0.00000375	743.5858815	198289568.	15.0000717	0.00005625	-0.00005625	0.2605725	1.6149453	
0.00000500	988.6338690	197726774.	15.0000720	0.00007500	-0.00007500	0.3458805	2.1532604	
0.00000625	1232.	197163979.	15.0000724	0.00009375	-0.00009375	0.4304138	2.6915756	
0.00000750	1475.	196601185.	15.0000727	0.0001125	-0.0001125	0.5141723	3.2298908	
0.00000875	1475.	168515301.	6.9751163	0.00006103	-0.0002015	0.2791682	-5.8045017	C
0.00001000	1475.	147450888.	6.9777075	0.00006978	-0.0002302	0.3185137	-6.6329648	C
0.00001125	1475.	131067456.	6.9803053	0.00007853	-0.0002590	0.3577244	-7.4612379	C
0.00001250	1475.	117960711.	6.9829098	0.00008729	-0.0002877	0.3968002	-8.2893202	C
0.00001375	1475.	107237010.	6.9855211	0.00009605	-0.0003164	0.4357407	-9.1172109	C
0.00001500	1475.	98300592.	6.9881391	0.0001048	-0.0003452	0.4745458	-9.9449094	C
0.00001625	1475.	90739008.	6.9907640	0.0001136	-0.0003739	0.5132151	-10.7724149	C
0.00001750	1475.	84257651.	6.9933957	0.0001224	-0.0004026	0.5517483	-11.5997267	C
0.00001875	1475.	78640474.	6.9960343	0.0001312	-0.0004313	0.5901452	-12.4268438	C
0.00002000	1475.	73725444.	6.9986798	0.0001400	-0.0004600	0.6284056	-13.2537657	C
0.00002125	1475.	69388653.	7.0013322	0.0001488	-0.0004887	0.6665291	-14.0804915	C

0.00002250	1475.	65533728.	7.0039917	0.0001576	-0.0005174	0.7045155	-14.9070204	C
0.00002375	1475.	62084585.	7.0066581	0.0001664	-0.0005461	0.7423644	-15.7333517	C
0.00002500	1475.	58980355.	7.0093317	0.0001752	-0.0005748	0.7800757	-16.5594845	C
0.00002625	1475.	56171767.	7.0120123	0.0001841	-0.0006034	0.8176491	-17.3854181	C
0.00002750	1475.	53618505.	7.0147001	0.0001929	-0.0006321	0.8550842	-18.2111516	C
0.00002875	1475.	51287266.	7.0173951	0.0002018	-0.0006607	0.8923807	-19.0366843	C
0.00003000	1475.	49150296.	7.0200973	0.0002106	-0.0006894	0.9295385	-19.8620153	C
0.00003125	1475.	47184284.	7.0228067	0.0002195	-0.0007180	0.9665572	-20.6871438	C
0.00003250	1475.	45369504.	7.0255235	0.0002283	-0.0007467	1.0034365	-21.5120690	C
0.00003375	1475.	43689152.	7.0282476	0.0002372	-0.0007753	1.0401761	-22.3367901	C
0.00003500	1475.	42128825.	7.0309791	0.0002461	-0.0008039	1.0767758	-23.1613062	C
0.00003625	1475.	40676107.	7.0337180	0.0002550	-0.0008325	1.1132352	-23.9856164	C
0.00003750	1475.	39320237.	7.0364643	0.0002639	-0.0008611	1.1495540	-24.8097200	C
0.00003875	1475.	38051842.	7.0392182	0.0002728	-0.0008897	1.1857320	-25.6336160	C
0.00004000	1475.	36862722.	7.0419796	0.0002817	-0.0009183	1.2217689	-26.4573036	C
0.00004125	1475.	35745670.	7.0447486	0.0002906	-0.0009469	1.2576644	-27.2807819	C
0.00004250	1475.	34694327.	7.0475252	0.0002995	-0.0009755	1.2934180	-28.1040501	C
0.00004375	1475.	33703060.	7.0502953	0.0003085	-0.0010040	1.3290272	-28.9271252	C
0.00004500	1501.	33344538.	7.0529584	0.0003174	-0.0010326	1.3644729	-29.7501392	C
0.00004625	1542.	33334431.	7.0556287	0.0003263	-0.0010612	1.3997749	-30.5729505	C
0.00004750	1583.	33324300.	7.0583060	0.0003353	-0.0010897	1.4349327	-31.3955584	C
0.00004875	1624.	33314147.	7.0609905	0.0003442	-0.0011183	1.4699460	-32.2179622	C
0.00005125	1706.	33293768.	7.0663810	0.0003622	-0.0011753	1.5395380	-33.8621541	C
0.00005375	1788.	33273296.	7.0718005	0.0003801	-0.0012324	1.6085486	-35.5055188	C
0.00005625	1870.	33252728.	7.0772493	0.0003981	-0.0012894	1.6769753	-37.1480499	C
0.00005875	1952.	33232065.	7.0827279	0.0004161	-0.0013464	1.7448155	-38.7897403	C
0.00006125	2034.	33211304.	7.0882364	0.0004342	-0.0014033	1.8120668	-40.4305830	C
0.00006375	2116.	33190445.	7.0937753	0.0004522	-0.0014603	1.8787265	-42.0705709	C
0.00006625	2197.	33169487.	7.0993449	0.0004703	-0.0015172	1.9447921	-43.7096966	C
0.00006875	2279.	33148428.	7.1049456	0.0004885	-0.0015740	2.0102609	-45.3479529	C
0.00007125	2360.	33127268.	7.1105776	0.0005066	-0.0016309	2.0751304	-46.9853322	C
0.00007375	2442.	33106006.	7.1162414	0.0005248	-0.0016877	2.1393978	-48.6218269	C
0.00007625	2523.	33084639.	7.1219374	0.0005430	-0.0017445	2.2030603	-50.2574293	C
0.00007875	2604.	33063169.	7.1276658	0.0005613	-0.0018012	2.2661153	-51.8921316	C
0.00008125	2685.	33041592.	7.1334272	0.0005796	-0.0018579	2.3285600	-53.5259257	C
0.00008375	2765.	33019908.	7.1392218	0.0005979	-0.0019146	2.3903915	-55.1588036	C
0.00008625	2846.	32998117.	7.1450501	0.0006163	-0.0019712	2.4516069	-56.7907570	C
0.00008875	2927.	32976215.	7.1509126	0.0006346	-0.0020279	2.5122034	-58.4217776	C
0.00009125	3007.	32954204.	7.1568095	0.0006531	-0.0020844	2.5721780	-60.0000000	CY
0.00009375	3087.	32932080.	7.1627413	0.0006715	-0.0021410	2.6315277	-60.0000000	CY
0.00009625	3168.	32909843.	7.1687085	0.0006900	-0.0021975	2.6902496	-60.0000000	CY
0.00009875	3248.	32887492.	7.1747114	0.0007085	-0.0022540	2.7483405	-60.0000000	CY
0.0001013	3328.	32865025.	7.1807506	0.0007271	-0.0023104	2.8057974	-60.0000000	CY
0.0001038	3407.	32842441.	7.1868265	0.0007456	-0.0023669	2.8626172	-60.0000000	CY
0.0001063	3486.	32813615.	7.1925048	0.0007642	-0.0024233	2.9186553	-60.0000000	CY
0.0001088	3559.	32722837.	7.1937469	0.0007823	-0.0024802	2.9725785	-60.0000000	CY
0.0001113	3620.	32538157.	7.1880697	0.0007997	-0.0025378	3.0235177	-60.0000000	CY
0.0001138	3678.	32335848.	7.1810147	0.0008168	-0.0025957	3.0732646	-60.0000000	CY
0.0001163	3731.	32095348.	7.1708913	0.0008336	-0.0026539	3.1212379	-60.0000000	CY
0.0001188	3775.	31790569.	7.1555288	0.0008497	-0.0027128	3.1666754	-60.0000000	CY
0.0001213	3814.	31459190.	7.1378515	0.0008655	-0.0027720	3.2105426	-60.0000000	CY
0.0001238	3853.	31136342.	7.1206992	0.0008812	-0.0028313	3.2538131	-60.0000000	CY

0.0001263	3892.	30825810.	7.1043939	0.0008969	-0.0028906	3.2966126	-60.0000000	CY
0.0001288	3930.	30526871.	7.0888872	0.0009127	-0.0029498	3.3389392	-60.0000000	CY
0.0001313	3969.	30236803.	7.0739481	0.0009285	-0.0030090	3.3807251	-60.0000000	CY
0.0001338	4004.	29938801.	7.0580392	0.0009440	-0.0030685	3.4214342	-60.0000000	CY
0.0001363	4035.	29611670.	7.0385640	0.0009590	-0.0031285	3.4601374	-60.0000000	CY
0.0001388	4060.	29259762.	7.0158667	0.0009735	-0.0031890	3.4969451	-60.0000000	CY
0.0001413	4083.	28903705.	6.9924343	0.0009877	-0.0032498	3.5327494	-60.0000000	CY
0.0001438	4105.	28559692.	6.9699270	0.0010019	-0.0033106	3.5681622	-60.0000000	CY
0.0001463	4128.	28227180.	6.9483056	0.0010162	-0.0033713	3.6031851	-60.0000000	CY
0.0001488	4151.	27905587.	6.9275261	0.0010305	-0.0034320	3.6378168	-60.0000000	CY
0.0001588	4241.	26718055.	6.8520443	0.0010878	-0.0036747	3.7724033	-60.0000000	CY
0.0001688	4328.	25650012.	6.7849828	0.0011450	-0.0039175	3.8997936	-60.0000000	CY
0.0001788	4385.	24529840.	6.7024716	0.0011981	-0.0041644	4.0115760	-60.0000000	CY
0.0001888	4432.	23478208.	6.6213086	0.0012498	-0.0044127	4.1145889	-60.0000000	CY
0.0001988	4478.	22530408.	6.5494713	0.0013017	-0.0046608	4.2123676	-60.0000000	CY
0.0002088	4524.	21671481.	6.4856408	0.0013539	-0.0049086	4.3048419	-60.0000000	CY
0.0002188	4569.	20888239.	6.4271758	0.0014059	-0.0051566	4.3913732	-60.0000000	CY
0.0002288	4614.	20169144.	6.3722880	0.0014577	-0.0054048	4.4716142	-60.0000000	CY
0.0002388	4651.	19481346.	6.3172887	0.0015083	-0.0056542	4.5445778	-60.0000000	CY
0.0002488	4678.	18804947.	6.2583595	0.0015568	-0.0059057	4.6093738	-60.0000000	CY
0.0002588	4699.	18158473.	6.1999935	0.0016042	-0.0061583	4.6679392	-60.0000000	CY
0.0002688	4719.	17558184.	6.1462786	0.0016518	-0.0064107	4.7218432	-60.0000000	CY
0.0002788	4738.	16997674.	6.0932510	0.0016985	-0.0066640	4.7700795	-60.0000000	CY
0.0002888	4757.	16475121.	6.0446256	0.0017454	-0.0069171	4.8139186	-60.0000000	CY
0.0002988	4776.	15986696.	5.9999740	0.0017925	-0.0071700	4.8532994	-60.0000000	CY
0.0003088	4795.	15529063.	5.9589238	0.0018398	-0.0074227	4.8881588	-60.0000000	CY
0.0003188	4813.	15099307.	5.9211502	0.0018874	-0.0076751	4.9184318	-60.0000000	CY
0.0003288	4831.	14694865.	5.8863682	0.0019351	-0.0079274	4.9440515	-60.0000000	CY
0.0003388	4849.	14313477.	5.8543272	0.0019832	-0.0081793	4.9649486	-60.0000000	CY
0.0003488	4866.	13952191.	5.8223667	0.0020306	-0.0084319	4.9808022	-60.0000000	CY
0.0003588	4883.	13610146.	5.7924808	0.0020781	-0.0086844	4.9919395	-60.0000000	CY
0.0003688	4898.	13282862.	5.7635894	0.0021253	-0.0089372	4.9982985	60.0000000	CY
0.0003788	4912.	12969276.	5.7356297	0.0021724	-0.0091901	4.9970541	60.0000000	CY
0.0003888	4923.	12664759.	5.7070364	0.0022186	-0.0094439	4.9952147	60.0000000	CY
0.0003988	4933.	12370614.	5.6783236	0.0022642	-0.0096983	4.9993459	60.0000000	CY
0.0004088	4940.	12086187.	5.6496963	0.0023093	-0.0099532	4.9926995	60.0000000	CY
0.0004188	4947.	11812568.	5.6219601	0.0023542	-0.0102083	4.9946814	60.0000000	CY
0.0004288	4952.	11549895.	5.5952014	0.0023989	-0.0104636	4.9988820	60.0000000	CY
0.0004388	4957.	11298783.	5.5701622	0.0024439	-0.0107186	4.9973695	60.0000000	CY
0.0004488	4962.	11058114.	5.5465578	0.0024890	-0.0109735	4.9906730	60.0000000	CY
0.0004588	4967.	10826963.	5.5220230	0.0025332	-0.0112293	4.9962993	60.0000000	CY
0.0004688	4971.	10605430.	5.4989127	0.0025776	-0.0114849	4.9993798	60.0000000	CY
0.0004788	4976.	10392798.	5.4772661	0.0026222	-0.0117403	4.9952817	60.0000000	CY
0.0004888	4980.	10188424.	5.4571060	0.0026672	-0.0119953	4.9884027	60.0000000	CY
0.0004988	4984.	9992056.	5.4380710	0.0027122	-0.0122503	4.9944930	60.0000000	CY
0.0005088	4987.	9803219.	5.4201010	0.0027575	-0.0125050	4.9983551	60.0000000	CY
0.0005188	4991.	9621472.	5.4031407	0.0028029	-0.0127596	4.9999547	60.0000000	CY
0.0005288	4995.	9446167.	5.3874392	0.0028486	-0.0130139	4.9885217	60.0000000	CY
0.0005388	4998.	9277164.	5.3726595	0.0028945	-0.0132680	4.9879961	60.0000000	CY
0.0005488	5001.	9114178.	5.3586790	0.0029406	-0.0135219	4.9938808	60.0000000	CY
0.0006088	5019.	8245153.	5.2906327	0.0032207	-0.0150418	4.9936247	60.0000000	CYT
0.0006688	5034.	7527152.	5.2427730	0.0035061	-0.0165564	4.9870087	60.0000000	CYT

0.0007288	5046.	6923517.	5.2053928	0.0037934	-0.0180691	4.9801189	60.0000000 CYT
0.0007888	5046.	6396847.	5.2123804	0.0041113	-0.0195512	4.9999097	60.0000000 CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.000	5005.188	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	5005.	0.0000	3253.	32885881.
1	0.70	5005.	0.0000	3504.	32791997.
1	0.75	5005.	0.0000	3754.	31937534.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Displacement and Moment (Loading Type 4)

Displacement of pile head	=	0.250000 inches
Moment at pile head	=	0.0 in-lbs
Axial load at pile head	=	0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	0.00	40055.	-0.00342	0.00	1.99E+11	-35.8968	344.6095	0.00
0.4000	0.2336	191848.	39734.	-0.00342	0.00	1.99E+11	-97.7501	2009.	0.00
0.8000	0.2172	381445.	39078.	-0.00341	0.00	1.99E+11	-175.5119	3879.	0.00
1.2000	0.2008	566997.	38052.	-0.00340	0.00	1.99E+11	-252.0315	6025.	0.00
1.6000	0.1845	746743.	36675.	-0.00339	0.00	1.98E+11	-321.5443	8366.	0.00
2.0000	0.1683	919080.	34935.	-0.00337	0.00	1.98E+11	-403.4908	11509.	0.00
2.4000	0.1522	1082121.	32765.	-0.00334	0.00	1.97E+11	-500.6725	15793.	0.00
2.8000	0.1362	1233626.	30086.	-0.00331	0.00	1.97E+11	-615.6629	21699.	0.00
3.2000	0.1204	1370946.	26798.	-0.00328	0.00	1.97E+11	-754.1761	30079.	0.00
3.6000	0.1047	1490890.	22890.	-0.00316	0.00	3.35E+10	-874.1726	40087.	0.00
4.0000	0.09002	1590694.	18498.	-0.00294	0.00	3.33E+10	-955.8026	50963.	0.00
4.4000	0.07647	1668475.	13741.	-0.00270	0.00	3.33E+10	-1026.	64417.	0.00
4.8000	0.06408	1722611.	8842.	-0.00246	0.00	3.33E+10	-1015.	76032.	0.00
5.2000	0.05287	1753362.	4229.	-0.00221	0.00	3.33E+10	-907.2987	82368.	0.00
5.6000	0.04288	1763209.	149.4410	-0.00195	0.00	3.33E+10	-792.4709	88704.	0.00
6.0000	0.03411	1754797.	-3374.	-0.00170	0.00	3.33E+10	-675.4388	95040.	0.00
6.4000	0.02656	1730823.	-6341.	-0.00145	0.00	3.33E+10	-560.9117	101376.	0.00
6.8000	0.02020	1693925.	-8775.	-0.00120	0.00	3.33E+10	-453.3230	107712.	0.00
7.2000	0.01502	1646583.	-10719.	-9.61E-04	0.00	3.33E+10	-356.8021	114048.	0.00
7.6000	0.01097	1591020.	-12236.	-7.28E-04	0.00	3.33E+10	-275.1592	120384.	0.00
8.0000	0.00803	1529118.	-13405.	-5.04E-04	0.00	3.33E+10	-211.8777	126720.	0.00
8.4000	0.00614	1462334.	-14322.	-3.53E-04	0.00	8.67E+10	-170.1141	133056.	0.00
8.8000	0.00464	1391630.	-15053.	-2.96E-04	0.00	1.97E+11	-134.6441	139392.	0.00
9.2000	0.00330	1317825.	-15617.	-2.63E-04	0.00	1.97E+11	-100.1602	145728.	0.00
9.6000	0.00212	1241711.	-16018.	-2.31E-04	0.00	1.97E+11	-67.0297	152064.	0.00
10.0000	0.00108	1164053.	-16264.	-2.02E-04	0.00	1.97E+11	-35.5644	158400.	0.00
10.4000	1.76E-04	1085576.	-16364.	-1.75E-04	0.00	1.97E+11	-6.0237	164736.	0.00
10.8000	-6.00E-04	1006960.	-16327.	-1.49E-04	0.00	1.98E+11	21.3847	171072.	0.00
11.2000	-0.00126	928837.	-16164.	-1.26E-04	0.00	1.98E+11	46.5027	177408.	0.00
11.6000	-0.00181	851785.	-15886.	-1.04E-04	0.00	1.98E+11	69.2174	183744.	0.00
12.0000	-0.00226	776328.	-15506.	-8.45E-05	0.00	1.98E+11	89.4591	190080.	0.00
12.4000	-0.00262	702932.	-15034.	-6.66E-05	0.00	1.98E+11	107.1982	196416.	0.00
12.8000	-0.00290	632006.	-14482.	-5.05E-05	0.00	1.98E+11	122.4405	202752.	0.00
13.2000	-0.00310	563901.	-13864.	-3.60E-05	0.00	1.99E+11	135.2237	209088.	0.00
13.6000	-0.00324	498912.	-13190.	-2.32E-05	0.00	1.99E+11	145.6145	215424.	0.00
14.0000	-0.00333	437277.	-12472.	-1.19E-05	0.00	1.99E+11	153.7048	221760.	0.00
14.4000	-0.00336	379184.	-11720.	-2.05E-06	0.00	1.99E+11	159.6060	228096.	0.00
14.8000	-0.00335	324768.	-10944.	6.44E-06	0.00	1.99E+11	163.4473	234432.	0.00
15.2000	-0.00330	274118.	-10155.	1.37E-05	0.00	1.99E+11	165.3718	240768.	0.00
15.6000	-0.00322	227278.	-9361.	1.97E-05	0.00	1.99E+11	165.5340	247104.	0.00
16.0000	-0.00311	184252.	-8570.	2.46E-05	0.00	1.99E+11	164.0947	253440.	0.00
16.4000	-0.00298	145007.	-7789.	2.86E-05	0.00	1.99E+11	161.2192	259776.	0.00
16.8000	-0.00283	109476.	-7025.	3.17E-05	0.00	1.99E+11	157.0745	266112.	0.00
17.2000	-0.00267	77565.	-6284.	3.39E-05	0.00	1.99E+11	151.8272	272448.	0.00
17.6000	-0.00251	49151.	-5570.	3.54E-05	0.00	1.99E+11	145.6414	278784.	0.00
18.0000	-0.00233	24093.	-4888.	3.63E-05	0.00	1.99E+11	138.6766	285120.	0.00
18.4000	-0.00216	2230.	-4240.	3.66E-05	0.00	1.99E+11	131.0861	291456.	0.00

18.8000	-0.00198	-16613.	-3630.	3.65E-05	0.00	1.99E+11	123.0156	297792.	0.00
19.2000	-0.00181	-32621.	-3060.	3.59E-05	0.00	1.99E+11	114.6021	304128.	0.00
19.6000	-0.00164	-45989.	-2531.	3.49E-05	0.00	1.99E+11	105.9727	310464.	0.00
20.0000	-0.00147	-56915.	-2043.	3.37E-05	0.00	1.99E+11	97.2444	316800.	0.00
20.4000	-0.00131	-65601.	-1597.	3.22E-05	0.00	1.99E+11	88.5231	323136.	0.00
20.8000	-0.00116	-72248.	-1193.	3.06E-05	0.00	1.99E+11	79.9037	329472.	0.00
21.2000	-0.00102	-77053.	-829.5820	2.88E-05	0.00	1.99E+11	71.4701	335808.	0.00
21.6000	-8.88E-04	-80212.	-506.1463	2.69E-05	0.00	1.99E+11	63.2948	342144.	0.00
22.0000	-7.64E-04	-81912.	-221.1839	2.49E-05	0.00	1.99E+11	55.4396	348480.	0.00
22.4000	-6.49E-04	-82335.	26.9646	2.29E-05	0.00	1.99E+11	47.9557	354816.	0.00
22.8000	-5.43E-04	-81653.	240.1803	2.10E-05	0.00	1.99E+11	40.8842	361152.	0.00
23.2000	-4.47E-04	-80029.	420.5188	1.90E-05	0.00	1.99E+11	34.2569	367488.	0.00
23.6000	-3.61E-04	-77616.	570.1666	1.71E-05	0.00	1.99E+11	28.0964	373824.	0.00
24.0000	-2.83E-04	-74556.	691.3993	1.53E-05	0.00	1.99E+11	22.4173	380160.	0.00
24.4000	-2.14E-04	-70979.	786.5445	1.35E-05	0.00	1.99E+11	17.2266	386496.	0.00
24.8000	-1.53E-04	-67005.	857.9473	1.19E-05	0.00	1.99E+11	12.5246	392832.	0.00
25.2000	-9.99E-05	-62742.	907.9398	1.03E-05	0.00	1.99E+11	8.3056	399168.	0.00
25.6000	-5.40E-05	-58289.	938.8141	8.86E-06	0.00	1.99E+11	4.5587	405504.	0.00
26.0000	-1.48E-05	-53730.	952.7992	7.52E-06	0.00	1.99E+11	1.2684	411840.	0.00
26.4000	1.82E-05	-49142.	952.0405	6.28E-06	0.00	1.99E+11	-1.5845	418176.	0.00
26.8000	4.55E-05	-44590.	938.5841	5.15E-06	0.00	1.99E+11	-4.0223	424512.	0.00
27.2000	6.76E-05	-40131.	914.3630	4.13E-06	0.00	1.99E+11	-6.0698	430848.	0.00
27.6000	8.51E-05	-35812.	881.1876	3.22E-06	0.00	1.99E+11	-7.7533	437184.	0.00
28.0000	9.85E-05	-31672.	840.7376	2.40E-06	0.00	1.99E+11	-9.1008	443520.	0.00
28.4000	1.08E-04	-27741.	794.5581	1.69E-06	0.00	1.99E+11	-10.1406	449856.	0.00
28.8000	1.15E-04	-24044.	744.0572	1.07E-06	0.00	1.99E+11	-10.9014	456192.	0.00
29.2000	1.18E-04	-20598.	690.5055	5.28E-07	0.00	1.99E+11	-11.4117	462528.	0.00
29.6000	1.20E-04	-17415.	635.0388	7.05E-08	0.00	1.99E+11	-11.6994	468864.	0.00
30.0000	1.19E-04	-14502.	578.6609	-3.14E-07	0.00	1.99E+11	-11.7914	475200.	0.00
30.4000	1.17E-04	-11860.	522.2489	-6.31E-07	0.00	1.99E+11	-11.7136	481536.	0.00
30.8000	1.13E-04	-9488.	466.5598	-8.88E-07	0.00	1.99E+11	-11.4903	487872.	0.00
31.2000	1.08E-04	-7381.	412.2369	-1.09E-06	0.00	1.99E+11	-11.1443	494208.	0.00
31.6000	1.03E-04	-5531.	359.8186	-1.25E-06	0.00	1.99E+11	-10.6967	500544.	0.00
32.0000	9.63E-05	-3927.	309.7467	-1.36E-06	0.00	1.99E+11	-10.1666	506880.	0.00
32.4000	8.95E-05	-2557.	262.3753	-1.44E-06	0.00	1.99E+11	-9.5714	513216.	0.00
32.8000	8.25E-05	-1408.	217.9804	-1.49E-06	0.00	1.99E+11	-8.9264	519552.	0.00
33.2000	7.53E-05	-464.6937	176.7689	-1.51E-06	0.00	1.99E+11	-8.2450	525888.	0.00
33.6000	6.80E-05	288.8146	138.8883	-1.51E-06	0.00	1.99E+11	-7.5386	532224.	0.00
34.0000	6.08E-05	868.6342	104.4357	-1.50E-06	0.00	1.99E+11	-6.8167	538560.	0.00
34.4000	5.36E-05	1291.	73.4666	-1.47E-06	0.00	1.99E+11	-6.0871	544896.	0.00
34.8000	4.66E-05	1574.	46.0035	-1.44E-06	0.00	1.99E+11	-5.3558	551232.	0.00
35.2000	3.98E-05	1733.	22.0442	-1.40E-06	0.00	1.99E+11	-4.6272	557568.	0.00
35.6000	3.32E-05	1786.	1.5687	-1.35E-06	0.00	1.99E+11	-3.9042	563904.	0.00
36.0000	2.68E-05	1748.	-15.4532	-1.31E-06	0.00	1.99E+11	-3.1883	570240.	0.00
36.4000	2.06E-05	1637.	-29.0563	-1.27E-06	0.00	1.99E+11	-2.4797	576576.	0.00
36.8000	1.46E-05	1469.	-39.2741	-1.23E-06	0.00	1.99E+11	-1.7777	582912.	0.00
37.2000	8.80E-06	1260.	-46.1345	-1.20E-06	0.00	1.99E+11	-1.0808	589248.	0.00
37.6000	3.11E-06	1026.	-49.6558	-1.17E-06	0.00	1.99E+11	-0.3865	595584.	0.00
38.0000	-2.46E-06	783.4600	-49.8440	-1.15E-06	0.00	1.99E+11	0.3080	601920.	0.00
38.4000	-7.94E-06	547.7568	-46.6911	-1.14E-06	0.00	1.99E+11	1.0057	608256.	0.00
38.8000	-1.34E-05	335.2250	-40.1740	-1.12E-06	0.00	1.99E+11	1.7098	614592.	0.00
39.2000	-1.87E-05	162.0861	-30.2551	-1.12E-06	0.00	1.99E+11	2.4231	620928.	0.00

39.6000	-2.41E-05	44.7757	-16.8840	-1.12E-06	0.00	1.99E+11	3.1482	627264.	0.00
40.0000	-2.94E-05	0.00	0.00	-1.12E-06	0.00	1.99E+11	3.8868	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```
Pile-head deflection               =     0.25000000 inches
Computed slope at pile head        =    -0.00342352 radians
Maximum bending moment             =       1763209. inch-lbs
Maximum shear force                =         40055. lbs
Depth of maximum bending moment    =     5.60000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             57
Number of zero deflection points   =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                          =     0.500000 inches
Moment at pile head                                =          0.0 in-lbs
Axial load at pile head                            =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	0.00	52890.	-0.00651	0.00	1.99E+11	-62.5000	300.0000	0.00
0.4000	0.4687	253151.	52460.	-0.00651	0.00	1.99E+11	-116.8109	1196.	0.00
0.8000	0.4375	503611.	51741.	-0.00650	0.00	1.99E+11	-182.7706	2005.	0.00
1.2000	0.4064	749860.	50684.	-0.00648	0.00	1.98E+11	-257.2437	3039.	0.00
1.6000	0.3753	990182.	49260.	-0.00646	0.00	1.98E+11	-336.3925	4303.	0.00
2.0000	0.3443	1222754.	47434.	-0.00644	0.00	1.97E+11	-424.2929	5915.	0.00
2.4000	0.3135	1445550.	45161.	-0.00640	0.00	1.97E+11	-522.8566	8006.	0.00
2.8000	0.2828	1656299.	42384.	-0.00627	0.00	3.33E+10	-634.1990	10763.	0.00
3.2000	0.2533	1852437.	39033.	-0.00601	0.00	3.33E+10	-762.1724	14441.	0.00
3.6000	0.2251	2031014.	35076.	-0.00573	0.00	3.32E+10	-886.3650	18900.	0.00
4.0000	0.1983	2189169.	30566.	-0.00543	0.00	3.32E+10	-992.8784	24034.	0.00
4.4000	0.1730	2324448.	25563.	-0.00510	0.00	3.31E+10	-1092.	30288.	0.00
4.8000	0.1493	2434575.	20124.	-0.00476	0.00	3.31E+10	-1175.	37764.	0.00
5.2000	0.1273	2517636.	14321.	-0.00440	0.00	3.31E+10	-1243.	46850.	0.00

5.6000	0.1071	2572059.	8236.	-0.00403	0.00	3.31E+10	-1292.	57921.	0.00
6.0000	0.08867	2596704.	1977.	-0.00365	0.00	3.31E+10	-1315.	71207.	0.00
6.4000	0.07205	2591040.	-4346.	-0.00328	0.00	3.31E+10	-1319.	87900.	0.00
6.8000	0.05722	2554980.	-10594.	-0.00290	0.00	3.31E+10	-1284.	107712.	0.00
7.2000	0.04418	2489333.	-16196.	-0.00254	0.00	3.31E+10	-1050.	114048.	0.00
7.6000	0.03287	2399502.	-20693.	-0.00218	0.00	3.31E+10	-824.3634	120384.	0.00
8.0000	0.02323	2290678.	-24144.	-0.00184	0.00	3.31E+10	-613.2362	126720.	0.00
8.4000	0.01518	2167724.	-26625.	-0.00152	0.00	3.32E+10	-420.7961	133056.	0.00
8.8000	0.00864	2035075.	-28237.	-0.00122	0.00	3.32E+10	-250.8248	139392.	0.00
9.2000	0.00351	1896648.	-29095.	-9.32E-04	0.00	3.32E+10	-106.4429	145728.	0.00
9.6000	-3.11E-04	1755768.	-29326.	-6.69E-04	0.00	3.33E+10	9.8448	152064.	0.00
10.0000	-0.00291	1615114.	-29072.	-4.26E-04	0.00	3.33E+10	96.0977	158400.	0.00
10.4000	-0.00440	1476675.	-28479.	-2.29E-04	0.00	4.43E+10	150.8848	164736.	0.00
10.8000	-0.00511	1341712.	-27680.	-1.33E-04	0.00	1.97E+11	182.2189	171072.	0.00
11.2000	-0.00567	1210948.	-26739.	-1.02E-04	0.00	1.97E+11	209.6410	177408.	0.00
11.6000	-0.00609	1085013.	-25677.	-7.39E-05	0.00	1.97E+11	233.1240	183744.	0.00
12.0000	-0.00638	964450.	-24511.	-4.90E-05	0.00	1.98E+11	252.6970	190080.	0.00
12.4000	-0.00656	849709.	-23260.	-2.70E-05	0.00	1.98E+11	268.4413	196416.	0.00
12.8000	-0.00664	741153.	-21943.	-7.70E-06	0.00	1.98E+11	280.4816	202752.	0.00
13.2000	-0.00663	639059.	-20576.	8.99E-06	0.00	1.98E+11	288.9820	209088.	0.00
13.6000	-0.00655	543623.	-19177.	2.33E-05	0.00	1.99E+11	294.1369	215424.	0.00
14.0000	-0.00641	454965.	-17760.	3.53E-05	0.00	1.99E+11	296.1678	221760.	0.00
14.4000	-0.00621	373130.	-16340.	4.53E-05	0.00	1.99E+11	295.3160	228096.	0.00
14.8000	-0.00598	298098.	-14931.	5.34E-05	0.00	1.99E+11	291.8373	234432.	0.00
15.2000	-0.00570	229791.	-13544.	5.98E-05	0.00	1.99E+11	285.9980	240768.	0.00
15.6000	-0.00540	168074.	-12190.	6.46E-05	0.00	1.99E+11	278.0694	247104.	0.00
16.0000	-0.00508	112763.	-10879.	6.79E-05	0.00	1.99E+11	268.3230	253440.	0.00
16.4000	-0.00475	63634.	-9618.	7.01E-05	0.00	1.99E+11	257.0276	259776.	0.00
16.8000	-0.00441	20427.	-8415.	7.11E-05	0.00	1.99E+11	244.4465	266112.	0.00
17.2000	-0.00407	-17148.	-7274.	7.11E-05	0.00	1.99E+11	230.8337	272448.	0.00
17.6000	-0.00373	-49404.	-6201.	7.03E-05	0.00	1.99E+11	216.4322	278784.	0.00
18.0000	-0.00339	-76674.	-5198.	6.88E-05	0.00	1.99E+11	201.4711	285120.	0.00
18.4000	-0.00307	-99302.	-4267.	6.67E-05	0.00	1.99E+11	186.1643	291456.	0.00
18.8000	-0.00275	-117641.	-3411.	6.41E-05	0.00	1.99E+11	170.7092	297792.	0.00
19.2000	-0.00245	-132046.	-2628.	6.11E-05	0.00	1.99E+11	155.2853	304128.	0.00
19.6000	-0.00217	-142874.	-1920.	5.78E-05	0.00	1.99E+11	140.0543	310464.	0.00
20.0000	-0.00190	-150475.	-1283.	5.42E-05	0.00	1.99E+11	125.1590	316800.	0.00
20.4000	-0.00164	-155193.	-717.0334	5.06E-05	0.00	1.99E+11	110.7240	323136.	0.00
20.8000	-0.00141	-157359.	-218.8427	4.68E-05	0.00	1.99E+11	96.8555	329472.	0.00
21.2000	-0.00120	-157293.	214.3513	4.30E-05	0.00	1.99E+11	83.6420	335808.	0.00
21.6000	-9.98E-04	-155301.	585.8641	3.92E-05	0.00	1.99E+11	71.1550	342144.	0.00
22.0000	-8.19E-04	-151669.	899.3155	3.55E-05	0.00	1.99E+11	59.4498	348480.	0.00
22.4000	-6.57E-04	-146668.	1159.	3.20E-05	0.00	1.99E+11	48.5663	354816.	0.00
22.8000	-5.12E-04	-140547.	1368.	2.85E-05	0.00	1.99E+11	38.5305	361152.	0.00
23.2000	-3.83E-04	-133539.	1531.	2.52E-05	0.00	1.99E+11	29.3554	367488.	0.00
23.6000	-2.70E-04	-125854.	1651.	2.21E-05	0.00	1.99E+11	21.0421	373824.	0.00
24.0000	-1.71E-04	-117685.	1735.	1.91E-05	0.00	1.99E+11	13.5816	380160.	0.00
24.4000	-8.64E-05	-109202.	1784.	1.64E-05	0.00	1.99E+11	6.9553	386496.	0.00
24.8000	-1.39E-05	-100560.	1803.	1.39E-05	0.00	1.99E+11	1.1369	392832.	0.00
25.2000	4.70E-05	-91891.	1797.	1.16E-05	0.00	1.99E+11	-3.9067	399168.	0.00
25.6000	9.72E-05	-83312.	1768.	9.47E-06	0.00	1.99E+11	-8.2140	405504.	0.00
26.0000	1.38E-04	-74922.	1719.	7.56E-06	0.00	1.99E+11	-11.8281	411840.	0.00

26.4000	1.70E-04	-66805.	1656.	5.86E-06	0.00	1.99E+11	-14.7954	418176.	0.00
26.8000	1.94E-04	-59029.	1579.	4.34E-06	0.00	1.99E+11	-17.1644	424512.	0.00
27.2000	2.12E-04	-51649.	1492.	3.01E-06	0.00	1.99E+11	-18.9853	430848.	0.00
27.6000	2.23E-04	-44705.	1398.	1.85E-06	0.00	1.99E+11	-20.3086	437184.	0.00
28.0000	2.29E-04	-38230.	1298.	8.52E-07	0.00	1.99E+11	-21.1850	443520.	0.00
28.4000	2.31E-04	-32243.	1195.	4.10E-09	0.00	1.99E+11	-21.6641	449856.	0.00
28.8000	2.29E-04	-26755.	1091.	-7.06E-07	0.00	1.99E+11	-21.7941	456192.	0.00
29.2000	2.24E-04	-21769.	986.8518	-1.29E-06	0.00	1.99E+11	-21.6213	462528.	0.00
29.6000	2.17E-04	-17281.	884.1051	-1.76E-06	0.00	1.99E+11	-21.1898	468864.	0.00
30.0000	2.07E-04	-13281.	783.9510	-2.13E-06	0.00	1.99E+11	-20.5410	475200.	0.00
30.4000	1.97E-04	-9755.	687.3404	-2.40E-06	0.00	1.99E+11	-19.7134	481536.	0.00
30.8000	1.84E-04	-6683.	595.0472	-2.60E-06	0.00	1.99E+11	-18.7422	487872.	0.00
31.2000	1.72E-04	-4043.	507.6832	-2.73E-06	0.00	1.99E+11	-17.6595	494208.	0.00
31.6000	1.58E-04	-1809.	425.7146	-2.80E-06	0.00	1.99E+11	-16.4941	500544.	0.00
32.0000	1.45E-04	44.3195	349.4774	-2.82E-06	0.00	1.99E+11	-15.2714	506880.	0.00
32.4000	1.31E-04	1546.	279.1937	-2.80E-06	0.00	1.99E+11	-14.0135	513216.	0.00
32.8000	1.18E-04	2725.	214.9874	-2.75E-06	0.00	1.99E+11	-12.7391	519552.	0.00
33.2000	1.05E-04	3610.	156.9001	-2.68E-06	0.00	1.99E+11	-11.4639	525888.	0.00
33.6000	9.20E-05	4231.	104.9055	-2.58E-06	0.00	1.99E+11	-10.2005	532224.	0.00
34.0000	7.98E-05	4617.	58.9236	-2.48E-06	0.00	1.99E+11	-8.9586	538560.	0.00
34.4000	6.82E-05	4796.	18.8347	-2.36E-06	0.00	1.99E+11	-7.7451	544896.	0.00
34.8000	5.72E-05	4798.	-15.5087	-2.25E-06	0.00	1.99E+11	-6.5646	551232.	0.00
35.2000	4.67E-05	4648.	-44.2703	-2.13E-06	0.00	1.99E+11	-5.4193	557568.	0.00
35.6000	3.67E-05	4373.	-67.6191	-2.02E-06	0.00	1.99E+11	-4.3094	563904.	0.00
36.0000	2.72E-05	3998.	-85.7210	-1.92E-06	0.00	1.99E+11	-3.2331	570240.	0.00
36.4000	1.82E-05	3550.	-98.7299	-1.83E-06	0.00	1.99E+11	-2.1873	576576.	0.00
36.8000	9.61E-06	3051.	-106.7816	-1.75E-06	0.00	1.99E+11	-1.1676	582912.	0.00
37.2000	1.37E-06	2525.	-109.9879	-1.69E-06	0.00	1.99E+11	-0.1684	589248.	0.00
37.6000	-6.58E-06	1995.	-108.4329	-1.63E-06	0.00	1.99E+11	0.8163	595584.	0.00
38.0000	-1.43E-05	1484.	-102.1701	-1.59E-06	0.00	1.99E+11	1.7932	601920.	0.00
38.4000	-2.18E-05	1014.	-91.2217	-1.56E-06	0.00	1.99E+11	2.7686	608256.	0.00
38.8000	-2.93E-05	607.9654	-75.5792	-1.54E-06	0.00	1.99E+11	3.7491	614592.	0.00
39.2000	-3.66E-05	288.3743	-55.2055	-1.53E-06	0.00	1.99E+11	4.7400	620928.	0.00
39.6000	-4.40E-05	77.9929	-30.0390	-1.53E-06	0.00	1.99E+11	5.7460	627264.	0.00
40.0000	-5.13E-05	0.00	0.00	-1.52E-06	0.00	1.99E+11	6.7702	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

```
Pile-head deflection             =     0.50000000 inches
Computed slope at pile head      =    -0.00651131 radians
Maximum bending moment           =       2596704. inch-lbs
Maximum shear force              =         52890. lbs
Depth of maximum bending moment  =     6.00000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
```

Number of iterations = 57
Number of zero deflection points = 3

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 3

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 0.750000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	0.00	63161.	-0.00941	0.00	1.99E+11	-37.5000	120.0000	0.00
0.4000	0.7048	302739.	62816.	-0.00941	0.00	1.99E+11	-106.3150	724.0379	0.00
0.8000	0.6597	603029.	62126.	-0.00940	0.00	1.99E+11	-180.7846	1315.	0.00
1.2000	0.6146	899153.	61067.	-0.00938	0.00	1.98E+11	-260.5138	2035.	0.00
1.6000	0.5696	1189275.	59613.	-0.00936	0.00	1.97E+11	-345.6074	2912.	0.00
2.0000	0.5248	1471435.	57734.	-0.00927	0.00	5.21E+10	-437.0515	3998.	0.00
2.4000	0.4806	1743524.	55398.	-0.00908	0.00	3.33E+10	-536.3990	5358.	0.00
2.8000	0.4376	2003255.	52561.	-0.00881	0.00	3.32E+10	-645.4909	7080.	0.00
3.2000	0.3960	2248114.	49172.	-0.00850	0.00	3.32E+10	-766.9530	9296.	0.00
3.6000	0.3560	2475303.	45186.	-0.00816	0.00	3.31E+10	-893.6634	12050.	0.00
4.0000	0.3177	2681901.	40604.	-0.00779	0.00	3.30E+10	-1016.	15346.	0.00
4.4000	0.2812	2865100.	35449.	-0.00738	0.00	3.30E+10	-1132.	19327.	0.00
4.8000	0.2468	3022209.	29764.	-0.00695	0.00	3.29E+10	-1236.	24044.	0.00
5.2000	0.2145	3150835.	23607.	-0.00650	0.00	3.29E+10	-1329.	29751.	0.00
5.6000	0.1844	3248832.	17038.	-0.00604	0.00	3.29E+10	-1408.	36649.	0.00
6.0000	0.1565	3314397.	10147.	-0.00556	0.00	3.29E+10	-1463.	44878.	0.00
6.4000	0.1310	3346245.	3034.	-0.00507	0.00	3.29E+10	-1500.	54978.	0.00
6.8000	0.1078	3343522.	-4229.	-0.00458	0.00	3.29E+10	-1526.	67922.	0.00
7.2000	0.08701	3305642.	-11545.	-0.00410	0.00	3.29E+10	-1522.	83987.	0.00
7.6000	0.06850	3232687.	-18791.	-0.00362	0.00	3.29E+10	-1497.	104882.	0.00
8.0000	0.05225	3125248.	-25694.	-0.00316	0.00	3.29E+10	-1379.	126720.	0.00
8.4000	0.03819	2986027.	-31545.	-0.00271	0.00	3.30E+10	-1059.	133056.	0.00
8.8000	0.02622	2822413.	-35914.	-0.00229	0.00	3.30E+10	-761.5209	139392.	0.00
9.2000	0.01622	2641254.	-38924.	-0.00189	0.00	3.31E+10	-492.5281	145728.	0.00
9.6000	0.00806	2448746.	-40719.	-0.00152	0.00	3.31E+10	-255.4614	152064.	0.00
10.0000	0.00161	2250353.	-41459.	-0.00118	0.00	3.32E+10	-53.0964	158400.	0.00
10.4000	-0.00328	2050737.	-41316.	-8.71E-04	0.00	3.32E+10	112.6402	164736.	0.00
10.8000	-0.00675	1853715.	-40469.	-5.89E-04	0.00	3.33E+10	240.5783	171072.	0.00
11.2000	-0.00893	1662237.	-39099.	-3.35E-04	0.00	3.33E+10	330.2068	177408.	0.00
11.6000	-0.00997	1478366.	-37391.	-1.36E-04	0.00	4.48E+10	381.5813	183744.	0.00
12.0000	-0.01024	1303287.	-35501.	-4.11E-05	0.00	1.97E+11	405.5613	190080.	0.00
12.4000	-0.01036	1137553.	-33510.	-1.13E-05	0.00	1.97E+11	424.0248	196416.	0.00
12.8000	-0.01035	981588.	-31443.	1.44E-05	0.00	1.98E+11	437.1976	202752.	0.00

13.2000	-0.01022	835695.	-29325.	3.64E-05	0.00	1.98E+11	445.3568	209088.	0.00
13.6000	-0.01000	700064.	-27179.	5.50E-05	0.00	1.98E+11	448.8190	215424.	0.00
14.0000	-0.00970	574774.	-25027.	7.05E-05	0.00	1.99E+11	447.9342	221760.	0.00
14.4000	-0.00932	459804.	-22889.	8.30E-05	0.00	1.99E+11	443.0762	228096.	0.00
14.8000	-0.00890	355043.	-20782.	9.28E-05	0.00	1.99E+11	434.6360	234432.	0.00
15.2000	-0.00843	260295.	-18724.	1.00E-04	0.00	1.99E+11	423.0132	240768.	0.00
15.6000	-0.00794	175294.	-16728.	1.05E-04	0.00	1.99E+11	408.6118	247104.	0.00
16.0000	-0.00742	99707.	-14807.	1.09E-04	0.00	1.99E+11	391.8316	253440.	0.00
16.4000	-0.00689	33148.	-12971.	1.10E-04	0.00	1.99E+11	373.0651	259776.	0.00
16.8000	-0.00636	-24815.	-11229.	1.10E-04	0.00	1.99E+11	352.6930	266112.	0.00
17.2000	-0.00583	-74653.	-9588.	1.09E-04	0.00	1.99E+11	331.0802	272448.	0.00
17.6000	-0.00531	-116862.	-8053.	1.07E-04	0.00	1.99E+11	308.5726	278784.	0.00
18.0000	-0.00481	-151962.	-6627.	1.04E-04	0.00	1.99E+11	285.4939	285120.	0.00
18.4000	-0.00432	-180484.	-5313.	9.97E-05	0.00	1.99E+11	262.1439	291456.	0.00
18.8000	-0.00385	-202967.	-4111.	9.51E-05	0.00	1.99E+11	238.7965	297792.	0.00
19.2000	-0.00340	-219947.	-3020.	9.00E-05	0.00	1.99E+11	215.6990	304128.	0.00
19.6000	-0.00299	-231958.	-2039.	8.46E-05	0.00	1.99E+11	193.0710	310464.	0.00
20.0000	-0.00259	-239520.	-1165.	7.89E-05	0.00	1.99E+11	171.1048	316800.	0.00
20.4000	-0.00223	-243140.	-394.2825	7.31E-05	0.00	1.99E+11	149.9654	323136.	0.00
20.8000	-0.00189	-243305.	277.1328	6.72E-05	0.00	1.99E+11	129.7910	329472.	0.00
21.2000	-0.00158	-240480.	854.2970	6.14E-05	0.00	1.99E+11	110.6941	335808.	0.00
21.6000	-0.00130	-235104.	1343.	5.57E-05	0.00	1.99E+11	92.7630	342144.	0.00
22.0000	-0.00105	-227591.	1748.	5.01E-05	0.00	1.99E+11	76.0624	348480.	0.00
22.4000	-8.20E-04	-218326.	2076.	4.47E-05	0.00	1.99E+11	60.6359	354816.	0.00
22.8000	-6.18E-04	-207663.	2333.	3.96E-05	0.00	1.99E+11	46.5069	361152.	0.00
23.2000	-4.40E-04	-195929.	2525.	3.48E-05	0.00	1.99E+11	33.6810	367488.	0.00
23.6000	-2.84E-04	-183419.	2659.	3.02E-05	0.00	1.99E+11	22.1478	373824.	0.00
24.0000	-1.50E-04	-170398.	2741.	2.59E-05	0.00	1.99E+11	11.8823	380160.	0.00
24.4000	-3.54E-05	-157104.	2776.	2.20E-05	0.00	1.99E+11	2.8473	386496.	0.00
24.8000	6.12E-05	-143744.	2771.	1.84E-05	0.00	1.99E+11	-5.0049	392832.	0.00
25.2000	1.41E-04	-130500.	2731.	1.51E-05	0.00	1.99E+11	-11.7307	399168.	0.00
25.6000	2.06E-04	-117526.	2661.	1.21E-05	0.00	1.99E+11	-17.3938	405504.	0.00
26.0000	2.57E-04	-104952.	2567.	9.41E-06	0.00	1.99E+11	-22.0630	411840.	0.00
26.4000	2.96E-04	-92887.	2452.	7.03E-06	0.00	1.99E+11	-25.8110	418176.	0.00
26.8000	3.25E-04	-81417.	2321.	4.94E-06	0.00	1.99E+11	-28.7132	424512.	0.00
27.2000	3.44E-04	-70608.	2178.	3.11E-06	0.00	1.99E+11	-30.8461	430848.	0.00
27.6000	3.54E-04	-60509.	2026.	1.53E-06	0.00	1.99E+11	-32.2860	437184.	0.00
28.0000	3.58E-04	-51155.	1869.	1.84E-07	0.00	1.99E+11	-33.1085	443520.	0.00
28.4000	3.56E-04	-42564.	1710.	-9.44E-07	0.00	1.99E+11	-33.3873	449856.	0.00
28.8000	3.49E-04	-34741.	1550.	-1.87E-06	0.00	1.99E+11	-33.1932	456192.	0.00
29.2000	3.38E-04	-27684.	1392.	-2.63E-06	0.00	1.99E+11	-32.5939	462528.	0.00
29.6000	3.24E-04	-21377.	1238.	-3.22E-06	0.00	1.99E+11	-31.6531	468864.	0.00
30.0000	3.07E-04	-15800.	1089.	-3.66E-06	0.00	1.99E+11	-30.4302	475200.	0.00
30.4000	2.89E-04	-10924.	946.3067	-3.99E-06	0.00	1.99E+11	-28.9803	481536.	0.00
30.8000	2.69E-04	-6716.	811.1065	-4.20E-06	0.00	1.99E+11	-27.3532	487872.	0.00
31.2000	2.49E-04	-3137.	684.0333	-4.32E-06	0.00	1.99E+11	-25.5940	494208.	0.00
31.6000	2.28E-04	-148.8778	565.6249	-4.36E-06	0.00	1.99E+11	-23.7428	500544.	0.00
32.0000	2.07E-04	2293.	456.2389	-4.33E-06	0.00	1.99E+11	-21.8347	506880.	0.00
32.4000	1.86E-04	4231.	356.0765	-4.25E-06	0.00	1.99E+11	-19.8996	513216.	0.00
32.8000	1.66E-04	5711.	265.2063	-4.13E-06	0.00	1.99E+11	-17.9630	519552.	0.00
33.2000	1.46E-04	6777.	183.5862	-3.98E-06	0.00	1.99E+11	-16.0454	525888.	0.00
33.6000	1.28E-04	7473.	111.0858	-3.81E-06	0.00	1.99E+11	-14.1631	532224.	0.00

34.0000	1.10E-04	7843.	47.5064	-3.63E-06	0.00	1.99E+11	-12.3283	538560.	0.00
34.4000	9.29E-05	7929.	-7.3998	-3.44E-06	0.00	1.99E+11	-10.5493	544896.	0.00
34.8000	7.69E-05	7772.	-53.9116	-3.25E-06	0.00	1.99E+11	-8.8307	551232.	0.00
35.2000	6.18E-05	7412.	-92.3228	-3.06E-06	0.00	1.99E+11	-7.1740	557568.	0.00
35.6000	4.75E-05	6886.	-122.9279	-2.89E-06	0.00	1.99E+11	-5.5781	563904.	0.00
36.0000	3.40E-05	6232.	-146.0086	-2.73E-06	0.00	1.99E+11	-4.0389	570240.	0.00
36.4000	2.12E-05	5484.	-161.8236	-2.59E-06	0.00	1.99E+11	-2.5507	576576.	0.00
36.8000	9.10E-06	4678.	-170.5988	-2.47E-06	0.00	1.99E+11	-1.1057	582912.	0.00
37.2000	-2.48E-06	3847.	-172.5203	-2.37E-06	0.00	1.99E+11	0.3050	589248.	0.00
37.6000	-1.36E-05	3022.	-167.7296	-2.29E-06	0.00	1.99E+11	1.6911	595584.	0.00
38.0000	-2.44E-05	2236.	-156.3199	-2.22E-06	0.00	1.99E+11	3.0629	601920.	0.00
38.4000	-3.50E-05	1521.	-138.3360	-2.18E-06	0.00	1.99E+11	4.4304	608256.	0.00
38.8000	-4.53E-05	908.4216	-113.7753	-2.15E-06	0.00	1.99E+11	5.8032	614592.	0.00
39.2000	-5.56E-05	429.1534	-82.5920	-2.13E-06	0.00	1.99E+11	7.1898	620928.	0.00
39.6000	-6.58E-05	115.5389	-44.7035	-2.13E-06	0.00	1.99E+11	8.5970	627264.	0.00
40.0000	-7.60E-05	0.00	0.00	-2.12E-06	0.00	1.99E+11	10.0294	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 3:

```
Pile-head deflection             =     0.75000000 inches
Computed slope at pile head      =    -0.00941383 radians
Maximum bending moment           =       3346245. inch-lbs
Maximum shear force              =         63161. lbs
Depth of maximum bending moment  =     6.40000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             14
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 4

Pile-head conditions are Displacement and Moment (Loading Type 4)

```
Displacement of pile head                        =     1.000000 inches
Moment at pile head                              =          0.0 in-lbs
Axial load at pile head                          =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch

0.00	1.0000	0.00	71554.	-0.01214	0.00	1.99E+11	-12.5000	30.0000	0.00
0.4000	0.9417	343317.	71304.	-0.01213	0.00	1.99E+11	-91.9246	468.5369	0.00
0.8000	0.8835	684517.	70661.	-0.01212	0.00	1.98E+11	-176.0151	956.2670	0.00
1.2000	0.8254	1021661.	69606.	-0.01210	0.00	1.98E+11	-263.6770	1533.	0.00
1.6000	0.7673	1352730.	68123.	-0.01207	0.00	1.97E+11	-354.2124	2216.	0.00
2.0000	0.7095	1675638.	66196.	-0.01193	0.00	3.33E+10	-448.3351	3033.	0.00
2.4000	0.6528	1988216.	63806.	-0.01167	0.00	3.32E+10	-547.5095	4026.	0.00
2.8000	0.5974	2288179.	60923.	-0.01136	0.00	3.31E+10	-654.0997	5255.	0.00
3.2000	0.5437	2573073.	57504.	-0.01101	0.00	3.31E+10	-770.4089	6802.	0.00
3.6000	0.4917	2840216.	53498.	-0.01062	0.00	3.30E+10	-898.8547	8774.	0.00
4.0000	0.4418	3086649.	48864.	-0.01018	0.00	3.29E+10	-1032.	11211.	0.00
4.4000	0.3940	3309310.	43600.	-0.00972	0.00	3.29E+10	-1162.	14152.	0.00
4.8000	0.3485	3505208.	37739.	-0.00922	0.00	3.28E+10	-1280.	17635.	0.00
5.2000	0.3055	3671607.	31327.	-0.00869	0.00	3.24E+10	-1391.	21864.	0.00
5.6000	0.2651	3805948.	24411.	-0.00813	0.00	3.15E+10	-1490.	26987.	0.00
6.0000	0.2274	3905951.	17067.	-0.00753	0.00	3.07E+10	-1570.	33127.	0.00
6.4000	0.1927	3969789.	9386.	-0.00691	0.00	3.02E+10	-1631.	40605.	0.00
6.8000	0.1611	3996059.	1446.	-0.00628	0.00	3.00E+10	-1678.	49997.	0.00
7.2000	0.1325	3983673.	-6654.	-0.00564	0.00	3.01E+10	-1697.	61501.	0.00
7.6000	0.1069	3932180.	-14794.	-0.00501	0.00	3.05E+10	-1694.	76061.	0.00
8.0000	0.08434	3841651.	-22916.	-0.00441	0.00	3.12E+10	-1690.	96192.	0.00
8.4000	0.06459	3712183.	-30949.	-0.00384	0.00	3.22E+10	-1657.	123141.	0.00
8.8000	0.04749	3544539.	-38236.	-0.00330	0.00	3.27E+10	-1379.	139392.	0.00
9.2000	0.03289	3345120.	-43942.	-0.00280	0.00	3.29E+10	-998.6234	145728.	0.00
9.6000	0.02064	3122693.	-47908.	-0.00233	0.00	3.29E+10	-653.8488	152064.	0.00
10.0000	0.01057	2885200.	-50315.	-0.00189	0.00	3.30E+10	-348.8417	158400.	0.00
10.4000	0.00252	2639671.	-51359.	-0.00149	0.00	3.31E+10	-86.4149	164736.	0.00
10.8000	-0.00370	2392150.	-51251.	-0.00112	0.00	3.31E+10	131.6947	171072.	0.00
11.2000	-0.00824	2147664.	-50203.	-7.92E-04	0.00	3.32E+10	304.6993	177408.	0.00
11.6000	-0.01130	1910198.	-48434.	-4.99E-04	0.00	3.32E+10	432.6287	183744.	0.00
12.0000	-0.01304	1682700.	-46157.	-2.40E-04	0.00	3.33E+10	516.2026	190080.	0.00
12.4000	-0.01360	1467095.	-43582.	-5.59E-05	0.00	5.61E+10	556.7118	196416.	0.00
12.8000	-0.01357	1264317.	-40870.	2.22E-05	0.00	1.97E+11	573.2957	202752.	0.00
13.2000	-0.01339	1074747.	-38094.	5.06E-05	0.00	1.97E+11	583.3552	209088.	0.00
13.6000	-0.01309	898618.	-35284.	7.46E-05	0.00	1.98E+11	587.3116	215424.	0.00
14.0000	-0.01268	736021.	-32469.	9.44E-05	0.00	1.98E+11	585.6274	221760.	0.00
14.4000	-0.01218	586916.	-29674.	1.10E-04	0.00	1.99E+11	578.7962	228096.	0.00
14.8000	-0.01162	451147.	-26924.	1.23E-04	0.00	1.99E+11	567.3303	234432.	0.00
15.2000	-0.01100	328450.	-24238.	1.32E-04	0.00	1.99E+11	551.7544	240768.	0.00
15.6000	-0.01035	218464.	-21635.	1.39E-04	0.00	1.99E+11	532.5954	247104.	0.00
16.0000	-0.00967	120750.	-19132.	1.43E-04	0.00	1.99E+11	510.3765	253440.	0.00
16.4000	-0.00897	34795.	-16742.	1.45E-04	0.00	1.99E+11	485.6089	259776.	0.00
16.8000	-0.00828	-39972.	-14475.	1.45E-04	0.00	1.99E+11	458.7878	266112.	0.00
17.2000	-0.00758	-104168.	-12341.	1.43E-04	0.00	1.99E+11	430.3877	272448.	0.00
17.6000	-0.00690	-158449.	-10346.	1.40E-04	0.00	1.99E+11	400.8575	278784.	0.00
18.0000	-0.00624	-203493.	-8495.	1.36E-04	0.00	1.99E+11	370.6176	285120.	0.00
18.4000	-0.00560	-239999.	-6789.	1.30E-04	0.00	1.99E+11	340.0563	291456.	0.00
18.8000	-0.00499	-268669.	-5230.	1.24E-04	0.00	1.99E+11	309.5285	297792.	0.00
19.2000	-0.00441	-290208.	-3817.	1.17E-04	0.00	1.99E+11	279.3547	304128.	0.00
19.6000	-0.00386	-305311.	-2547.	1.10E-04	0.00	1.99E+11	249.8197	310464.	0.00
20.0000	-0.00335	-314658.	-1416.	1.03E-04	0.00	1.99E+11	221.1722	316800.	0.00
20.4000	-0.00288	-318909.	-420.9282	9.51E-05	0.00	1.99E+11	193.6252	323136.	0.00

20.8000	-0.00244	-318699.	445.4286	8.74E-05	0.00	1.99E+11	167.3567	329472.	0.00
21.2000	-0.00204	-314633.	1189.	7.98E-05	0.00	1.99E+11	142.5111	335808.	0.00
21.6000	-0.00167	-307283.	1817.	7.23E-05	0.00	1.99E+11	119.2007	342144.	0.00
22.0000	-0.00134	-297187.	2337.	6.50E-05	0.00	1.99E+11	97.5076	348480.	0.00
22.4000	-0.00105	-284845.	2757.	5.80E-05	0.00	1.99E+11	77.4859	354816.	0.00
22.8000	-7.86E-04	-270717.	3085.	5.13E-05	0.00	1.99E+11	59.1638	361152.	0.00
23.2000	-5.56E-04	-255226.	3329.	4.50E-05	0.00	1.99E+11	42.5459	367488.	0.00
23.6000	-3.55E-04	-238755.	3498.	3.90E-05	0.00	1.99E+11	27.6161	373824.	0.00
24.0000	-1.81E-04	-221648.	3598.	3.35E-05	0.00	1.99E+11	14.3401	380160.	0.00
24.4000	-3.31E-05	-204210.	3639.	2.84E-05	0.00	1.99E+11	2.6679	386496.	0.00
24.8000	9.12E-05	-186711.	3628.	2.37E-05	0.00	1.99E+11	-7.4638	392832.	0.00
25.2000	1.94E-04	-169384.	3571.	1.94E-05	0.00	1.99E+11	-16.1299	399168.	0.00
25.6000	2.77E-04	-152428.	3476.	1.55E-05	0.00	1.99E+11	-23.4139	405504.	0.00
26.0000	3.43E-04	-136012.	3349.	1.20E-05	0.00	1.99E+11	-29.4066	411840.	0.00
26.4000	3.93E-04	-120273.	3197.	8.94E-06	0.00	1.99E+11	-34.2033	418176.	0.00
26.8000	4.29E-04	-105322.	3024.	6.23E-06	0.00	1.99E+11	-37.9027	424512.	0.00
27.2000	4.52E-04	-91245.	2835.	3.86E-06	0.00	1.99E+11	-40.6048	430848.	0.00
27.6000	4.66E-04	-78103.	2636.	1.82E-06	0.00	1.99E+11	-42.4095	437184.	0.00
28.0000	4.70E-04	-65939.	2430.	8.87E-08	0.00	1.99E+11	-43.4154	443520.	0.00
28.4000	4.66E-04	-54774.	2221.	-1.36E-06	0.00	1.99E+11	-43.7185	449856.	0.00
28.8000	4.57E-04	-44617.	2012.	-2.56E-06	0.00	1.99E+11	-43.4112	456192.	0.00
29.2000	4.42E-04	-35460.	1805.	-3.52E-06	0.00	1.99E+11	-42.5816	462528.	0.00
29.6000	4.23E-04	-27284.	1604.	-4.28E-06	0.00	1.99E+11	-41.3125	468864.	0.00
30.0000	4.01E-04	-20060.	1410.	-4.85E-06	0.00	1.99E+11	-39.6812	475200.	0.00
30.4000	3.76E-04	-13751.	1224.	-5.26E-06	0.00	1.99E+11	-37.7591	481536.	0.00
30.8000	3.50E-04	-8311.	1048.	-5.52E-06	0.00	1.99E+11	-35.6110	487872.	0.00
31.2000	3.23E-04	-3692.	882.4453	-5.67E-06	0.00	1.99E+11	-33.2952	494208.	0.00
31.6000	2.96E-04	160.5889	728.4635	-5.71E-06	0.00	1.99E+11	-30.8638	500544.	0.00
32.0000	2.69E-04	3302.	586.3215	-5.67E-06	0.00	1.99E+11	-28.3620	506880.	0.00
32.4000	2.42E-04	5789.	456.2638	-5.56E-06	0.00	1.99E+11	-25.8287	513216.	0.00
32.8000	2.15E-04	7682.	338.3636	-5.40E-06	0.00	1.99E+11	-23.2964	519552.	0.00
33.2000	1.90E-04	9038.	232.5516	-5.19E-06	0.00	1.99E+11	-20.7919	525888.	0.00
33.6000	1.65E-04	9914.	138.6449	-4.97E-06	0.00	1.99E+11	-18.3359	532224.	0.00
34.0000	1.42E-04	10369.	56.3731	-4.72E-06	0.00	1.99E+11	-15.9440	538560.	0.00
34.4000	1.20E-04	10455.	-14.5967	-4.47E-06	0.00	1.99E+11	-13.6267	544896.	0.00
34.8000	9.92E-05	10228.	-74.6366	-4.22E-06	0.00	1.99E+11	-11.3899	551232.	0.00
35.2000	7.95E-05	9739.	-124.1369	-3.98E-06	0.00	1.99E+11	-9.2353	557568.	0.00
35.6000	6.10E-05	9037.	-163.4877	-3.76E-06	0.00	1.99E+11	-7.1609	563904.	0.00
36.0000	4.34E-05	8169.	-193.0616	-3.55E-06	0.00	1.99E+11	-5.1616	570240.	0.00
36.4000	2.69E-05	7183.	-213.2000	-3.36E-06	0.00	1.99E+11	-3.2294	576576.	0.00
36.8000	1.12E-05	6123.	-224.2010	-3.20E-06	0.00	1.99E+11	-1.3543	582912.	0.00
37.2000	-3.87E-06	5031.	-226.3104	-3.07E-06	0.00	1.99E+11	0.4754	589248.	0.00
37.6000	-1.83E-05	3950.	-219.7146	-2.96E-06	0.00	1.99E+11	2.2728	595584.	0.00
38.0000	-3.23E-05	2922.	-204.5376	-2.88E-06	0.00	1.99E+11	4.0510	601920.	0.00
38.4000	-4.60E-05	1987.	-180.8392	-2.82E-06	0.00	1.99E+11	5.8234	608256.	0.00
38.8000	-5.94E-05	1186.	-148.6174	-2.78E-06	0.00	1.99E+11	7.6024	614592.	0.00
39.2000	-7.27E-05	559.8917	-107.8138	-2.76E-06	0.00	1.99E+11	9.3991	620928.	0.00
39.6000	-8.59E-05	150.6632	-58.3221	-2.75E-06	0.00	1.99E+11	11.2225	627264.	0.00
40.0000	-9.91E-05	0.00	0.00	-2.75E-06	0.00	1.99E+11	13.0784	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses

are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 4:

```
Pile-head deflection              =     1.00000000 inches
Computed slope at pile head       =    -0.01213838 radians
Maximum bending moment            =       3996059. inch-lbs
Maximum shear force               =         71554. lbs
Depth of maximum bending moment   =     6.80000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             32
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 5

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                          =     1.250000 inches
Moment at pile head                                =          0.0 in-lbs
Axial load at pile head                            =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	0.00	76828.	-0.01490	0.00	1.99E+11	0.00	0.00	0.00
0.4000	1.1785	368775.	76634.	-0.01489	0.00	1.99E+11	-80.7938	329.0701	0.00
0.8000	1.1070	735689.	76029.	-0.01488	0.00	1.98E+11	-171.2541	742.5324	0.00
1.2000	1.0357	1098657.	74978.	-0.01486	0.00	1.97E+11	-266.8370	1237.	0.00
1.6000	0.9644	1455477.	73467.	-0.01482	0.00	1.35E+11	-362.7968	1806.	0.00
2.0000	0.8934	1803938.	71493.	-0.01466	0.00	3.33E+10	-459.5849	2469.	0.00
2.4000	0.8237	2141811.	69050.	-0.01437	0.00	3.32E+10	-558.5308	3255.	0.00
2.8000	0.7554	2466815.	66119.	-0.01404	0.00	3.31E+10	-662.4181	4209.	0.00
3.2000	0.6889	2776557.	62673.	-0.01366	0.00	3.30E+10	-773.5685	5390.	0.00
3.6000	0.6243	3068475.	58668.	-0.01324	0.00	3.29E+10	-895.1274	6882.	0.00
4.0000	0.5619	3339770.	54043.	-0.01277	0.00	3.29E+10	-1032.	8815.	0.00
4.4000	0.5017	3587292.	48729.	-0.01226	0.00	3.26E+10	-1182.	11311.	0.00
4.8000	0.4442	3807573.	42742.	-0.01171	0.00	3.15E+10	-1312.	14182.	0.00
5.2000	0.3894	3997617.	36147.	-0.01110	0.00	3.00E+10	-1436.	17700.	0.00
5.6000	0.3376	4154582.	28985.	-0.01042	0.00	2.79E+10	-1548.	22010.	0.00
6.0000	0.2893	4275876.	21328.	-0.00967	0.00	2.63E+10	-1642.	27244.	0.00
6.4000	0.2448	4359332.	13267.	-0.00886	0.00	2.50E+10	-1717.	33661.	0.00
6.8000	0.2043	4403235.	4887.	-0.00800	0.00	2.41E+10	-1775.	41705.	0.00
7.2000	0.1680	4406244.	-3705.	-0.00713	0.00	2.40E+10	-1805.	51585.	0.00

7.6000	0.1359	4367666.	-12384.	-0.00626	0.00	2.49E+10	-1811.	63992.	0.00
8.0000	0.1078	4287356.	-21085.	-0.00545	0.00	2.61E+10	-1814.	80766.	0.00
8.4000	0.08355	4165246.	-29734.	-0.00469	0.00	2.77E+10	-1789.	102794.	0.00
8.8000	0.06275	4001912.	-38186.	-0.00401	0.00	3.00E+10	-1732.	132524.	0.00
9.2000	0.04502	3798662.	-45624.	-0.00340	0.00	3.16E+10	-1367.	145728.	0.00
9.6000	0.03007	3563919.	-51191.	-0.00285	0.00	3.27E+10	-952.5393	152064.	0.00
10.0000	0.01762	3307230.	-54873.	-0.00235	0.00	3.29E+10	-581.5565	158400.	0.00
10.4000	0.00750	3037142.	-56886.	-0.00189	0.00	3.29E+10	-257.2784	164736.	0.00
10.8000	-5.06E-04	2761126.	-57460.	-0.00147	0.00	3.30E+10	18.0354	171072.	0.00
11.2000	-0.00658	2485525.	-56833.	-0.00109	0.00	3.31E+10	243.2709	177408.	0.00
11.6000	-0.01093	2215530.	-55245.	-7.45E-04	0.00	3.32E+10	418.3070	183744.	0.00
12.0000	-0.01373	1955172.	-52936.	-4.43E-04	0.00	3.32E+10	543.8646	190080.	0.00
12.4000	-0.01518	1707345.	-50139.	-1.79E-04	0.00	3.33E+10	621.3615	196416.	0.00
12.8000	-0.01545	1473834.	-47081.	-9.15E-06	0.00	7.53E+10	652.7808	202752.	0.00
13.2000	-0.01527	1255363.	-43918.	5.31E-05	0.00	1.97E+11	665.2747	209088.	0.00
13.6000	-0.01494	1052220.	-40712.	8.12E-05	0.00	1.98E+11	670.7035	215424.	0.00
14.0000	-0.01449	864530.	-37495.	1.04E-04	0.00	1.98E+11	669.5963	221760.	0.00
14.4000	-0.01394	692267.	-34298.	1.23E-04	0.00	1.98E+11	662.5175	228096.	0.00
14.8000	-0.01331	535269.	-31148.	1.38E-04	0.00	1.99E+11	650.0556	234432.	0.00
15.2000	-0.01262	393249.	-28069.	1.49E-04	0.00	1.99E+11	632.8126	240768.	0.00
15.6000	-0.01188	265808.	-25083.	1.57E-04	0.00	1.99E+11	611.3934	247104.	0.00
16.0000	-0.01111	152454.	-22208.	1.62E-04	0.00	1.99E+11	586.3998	253440.	0.00
16.4000	-0.01032	52610.	-19461.	1.65E-04	0.00	1.99E+11	558.4194	259776.	0.00
16.8000	-0.00952	-34368.	-16853.	1.65E-04	0.00	1.99E+11	528.0220	266112.	0.00
17.2000	-0.00873	-109180.	-14396.	1.63E-04	0.00	1.99E+11	495.7538	272448.	0.00
17.6000	-0.00796	-172570.	-12097.	1.60E-04	0.00	1.99E+11	462.1328	278784.	0.00
18.0000	-0.00720	-225312.	-9962.	1.55E-04	0.00	1.99E+11	427.6438	285120.	0.00
18.4000	-0.00647	-268201.	-7993.	1.49E-04	0.00	1.99E+11	392.7358	291456.	0.00
18.8000	-0.00577	-302042.	-6191.	1.42E-04	0.00	1.99E+11	357.8201	297792.	0.00
19.2000	-0.00510	-327639.	-4557.	1.35E-04	0.00	1.99E+11	323.2686	304128.	0.00
19.6000	-0.00447	-345787.	-3086.	1.27E-04	0.00	1.99E+11	289.4121	310464.	0.00
20.0000	-0.00389	-357268.	-1776.	1.18E-04	0.00	1.99E+11	256.5397	316800.	0.00
20.4000	-0.00334	-362837.	-620.6049	1.09E-04	0.00	1.99E+11	224.8997	323136.	0.00
20.8000	-0.00284	-363225.	386.4355	1.01E-04	0.00	1.99E+11	194.7004	329472.	0.00
21.2000	-0.00237	-359128.	1252.	9.20E-05	0.00	1.99E+11	166.1112	335808.	0.00
21.6000	-0.00195	-351202.	1985.	8.34E-05	0.00	1.99E+11	139.2645	342144.	0.00
22.0000	-0.00157	-340069.	2594.	7.51E-05	0.00	1.99E+11	114.2583	348480.	0.00
22.4000	-0.00123	-326303.	3087.	6.70E-05	0.00	1.99E+11	91.1576	354816.	0.00
22.8000	-9.30E-04	-310436.	3474.	5.94E-05	0.00	1.99E+11	69.9982	361152.	0.00
23.2000	-6.63E-04	-292957.	3763.	5.21E-05	0.00	1.99E+11	50.7883	367488.	0.00
23.6000	-4.30E-04	-274307.	3966.	4.53E-05	0.00	1.99E+11	33.5119	373824.	0.00
24.0000	-2.29E-04	-254886.	4090.	3.89E-05	0.00	1.99E+11	18.1315	380160.	0.00
24.4000	-5.70E-05	-235047.	4144.	3.30E-05	0.00	1.99E+11	4.5910	386496.	0.00
24.8000	8.77E-05	-215102.	4138.	2.76E-05	0.00	1.99E+11	-7.1807	392832.	0.00
25.2000	2.08E-04	-195322.	4079.	2.26E-05	0.00	1.99E+11	-17.2680	399168.	0.00
25.6000	3.05E-04	-175940.	3976.	1.82E-05	0.00	1.99E+11	-25.7653	405504.	0.00
26.0000	3.82E-04	-157152.	3836.	1.42E-05	0.00	1.99E+11	-32.7754	411840.	0.00
26.4000	4.41E-04	-139119.	3665.	1.06E-05	0.00	1.99E+11	-38.4071	418176.	0.00
26.8000	4.84E-04	-121971.	3470.	7.44E-06	0.00	1.99E+11	-42.7725	424512.	0.00
27.2000	5.12E-04	-105809.	3257.	4.70E-06	0.00	1.99E+11	-45.9860	430848.	0.00
27.6000	5.29E-04	-90706.	3031.	2.34E-06	0.00	1.99E+11	-48.1618	437184.	0.00
28.0000	5.35E-04	-76712.	2797.	3.23E-07	0.00	1.99E+11	-49.4127	443520.	0.00

28.4000	5.32E-04	-63857.	2558.	-1.37E-06	0.00	1.99E+11	-49.8487	449856.	0.00
28.8000	5.22E-04	-52151.	2320.	-2.76E-06	0.00	1.99E+11	-49.5760	456192.	0.00
29.2000	5.05E-04	-41587.	2084.	-3.89E-06	0.00	1.99E+11	-48.6955	462528.	0.00
29.6000	4.84E-04	-32144.	1854.	-4.78E-06	0.00	1.99E+11	-47.3028	468864.	0.00
30.0000	4.59E-04	-23792.	1631.	-5.45E-06	0.00	1.99E+11	-45.4867	475200.	0.00
30.4000	4.32E-04	-16488.	1418.	-5.94E-06	0.00	1.99E+11	-43.3293	481536.	0.00
30.8000	4.02E-04	-10181.	1216.	-6.26E-06	0.00	1.99E+11	-40.9056	487872.	0.00
31.2000	3.72E-04	-4818.	1026.	-6.44E-06	0.00	1.99E+11	-38.2830	494208.	0.00
31.6000	3.41E-04	-336.2356	848.4095	-6.50E-06	0.00	1.99E+11	-35.5215	500544.	0.00
32.0000	3.09E-04	3327.	684.7412	-6.47E-06	0.00	1.99E+11	-32.6736	506880.	0.00
32.4000	2.79E-04	6237.	534.8422	-6.35E-06	0.00	1.99E+11	-29.7843	513216.	0.00
32.8000	2.48E-04	8461.	398.8199	-6.17E-06	0.00	1.99E+11	-26.8916	519552.	0.00
33.2000	2.19E-04	10066.	276.6163	-5.95E-06	0.00	1.99E+11	-24.0265	525888.	0.00
33.6000	1.91E-04	11117.	168.0405	-5.70E-06	0.00	1.99E+11	-21.2134	532224.	0.00
34.0000	1.65E-04	11679.	72.7989	-5.42E-06	0.00	1.99E+11	-18.4706	538560.	0.00
34.4000	1.39E-04	11816.	-9.4754	-5.14E-06	0.00	1.99E+11	-15.8104	544896.	0.00
34.8000	1.15E-04	11588.	-79.1966	-4.86E-06	0.00	1.99E+11	-13.2401	551232.	0.00
35.2000	9.26E-05	11056.	-136.8017	-4.58E-06	0.00	1.99E+11	-10.7620	557568.	0.00
35.6000	7.13E-05	10275.	-182.7287	-4.33E-06	0.00	1.99E+11	-8.3742	563904.	0.00
36.0000	5.11E-05	9301.	-217.3973	-4.09E-06	0.00	1.99E+11	-6.0710	570240.	0.00
36.4000	3.20E-05	8188.	-241.1926	-3.88E-06	0.00	1.99E+11	-3.8437	576576.	0.00
36.8000	1.38E-05	6986.	-254.4512	-3.70E-06	0.00	1.99E+11	-1.6808	582912.	0.00
37.2000	-3.51E-06	5745.	-257.4506	-3.55E-06	0.00	1.99E+11	0.4310	589248.	0.00
37.6000	-2.02E-05	4514.	-250.4011	-3.42E-06	0.00	1.99E+11	2.5062	595584.	0.00
38.0000	-3.64E-05	3341.	-233.4419	-3.33E-06	0.00	1.99E+11	4.5601	601920.	0.00
38.4000	-5.21E-05	2273.	-206.6391	-3.26E-06	0.00	1.99E+11	6.6077	608256.	0.00
38.8000	-6.77E-05	1358.	-169.9884	-3.22E-06	0.00	1.99E+11	8.6634	614592.	0.00
39.2000	-8.30E-05	641.4049	-123.4209	-3.19E-06	0.00	1.99E+11	10.7397	620928.	0.00
39.6000	-9.83E-05	172.7059	-66.8130	-3.18E-06	0.00	1.99E+11	12.8469	627264.	0.00
40.0000	-1.14E-04	0.00	0.00	-3.18E-06	0.00	1.99E+11	14.9918	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 5:

```
Pile-head deflection               =     1.25000000 inches
Computed slope at pile head        =    -0.01489515 radians
Maximum bending moment             =       4406244. inch-lbs
Maximum shear force                =         76828. lbs
Depth of maximum bending moment    =     7.20000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =            107
Number of zero deflection points   =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 6

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.500000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	0.00	80042.	-0.01780	0.00	1.99E+11	0.00	0.00	0.00
0.4000	1.4146	384199.	79848.	-0.01779	0.00	1.99E+11	-80.7936	274.1544	0.00
0.8000	1.3292	766537.	79244.	-0.01778	0.00	1.98E+11	-170.8707	617.0594	0.00
1.2000	1.2439	1144938.	78190.	-0.01776	0.00	1.97E+11	-268.1759	1035.	0.00
1.6000	1.1587	1517161.	76659.	-0.01763	0.00	3.33E+10	-369.7823	1532.	0.00
2.0000	1.0746	1880863.	74642.	-0.01739	0.00	3.33E+10	-470.6500	2102.	0.00
2.4000	0.9918	2233722.	72146.	-0.01709	0.00	3.32E+10	-569.3517	2756.	0.00
2.8000	0.9105	2573463.	69170.	-0.01674	0.00	3.31E+10	-670.5609	3535.	0.00
3.2000	0.8310	2897754.	65697.	-0.01635	0.00	3.30E+10	-776.6346	4486.	0.00
3.6000	0.7536	3204151.	61695.	-0.01590	0.00	3.29E+10	-890.9357	5675.	0.00
4.0000	0.6784	3490022.	57108.	-0.01541	0.00	3.28E+10	-1020.	7218.	0.00
4.4000	0.6056	3752387.	51866.	-0.01487	0.00	3.19E+10	-1164.	9224.	0.00
4.8000	0.5356	3987939.	45909.	-0.01427	0.00	3.01E+10	-1319.	11817.	0.00
5.2000	0.4686	4193112.	39215.	-0.01359	0.00	2.73E+10	-1471.	15063.	0.00
5.6000	0.4051	4364403.	31862.	-0.01280	0.00	2.49E+10	-1593.	18875.	0.00
6.0000	0.3457	4498989.	23963.	-0.01189	0.00	2.21E+10	-1698.	23576.	0.00
6.4000	0.2910	4594452.	15612.	-0.01086	0.00	2.05E+10	-1782.	29391.	0.00
6.8000	0.2414	4648863.	6904.	-0.00975	0.00	1.95E+10	-1846.	36710.	0.00
7.2000	0.1973	4660733.	-2043.	-0.00860	0.00	1.93E+10	-1882.	45774.	0.00
7.6000	0.1588	4629246.	-11100.	-0.00746	0.00	1.99E+10	-1892.	57172.	0.00
8.0000	0.1257	4554173.	-20191.	-0.00639	0.00	2.11E+10	-1896.	72413.	0.00
8.4000	0.09750	4435414.	-29238.	-0.00542	0.00	2.34E+10	-1874.	92235.	0.00
8.8000	0.07369	4273489.	-38104.	-0.00457	0.00	2.63E+10	-1821.	118581.	0.00
9.2000	0.05363	4069617.	-46381.	-0.00384	0.00	2.91E+10	-1628.	145728.	0.00
9.6000	0.03678	3828234.	-53085.	-0.00322	0.00	3.13E+10	-1165.	152064.	0.00
10.0000	0.02275	3560002.	-57684.	-0.00266	0.00	3.27E+10	-750.8897	158400.	0.00
10.4000	0.01123	3274469.	-60411.	-0.00216	0.00	3.29E+10	-385.4693	164736.	0.00
10.8000	0.00200	2980055.	-61508.	-0.00171	0.00	3.30E+10	-71.4063	171072.	0.00
11.2000	-0.00514	2683996.	-61223.	-0.00129	0.00	3.30E+10	190.0292	177408.	0.00
11.6000	-0.01041	2392315.	-59810.	-9.25E-04	0.00	3.31E+10	398.6846	183744.	0.00
12.0000	-0.01402	2109819.	-57520.	-5.99E-04	0.00	3.32E+10	555.3564	190080.	0.00
12.4000	-0.01617	1840120.	-54600.	-3.14E-04	0.00	3.33E+10	661.6282	196416.	0.00
12.8000	-0.01704	1585664.	-51284.	-6.70E-05	0.00	3.33E+10	719.7191	202752.	0.00
13.2000	-0.01681	1347790.	-47799.	6.36E-05	0.00	1.97E+11	732.3505	209088.	0.00
13.6000	-0.01643	1126790.	-44272.	9.37E-05	0.00	1.97E+11	737.3053	215424.	0.00
14.0000	-0.01591	922777.	-40738.	1.19E-04	0.00	1.98E+11	735.1694	221760.	0.00
14.4000	-0.01529	735703.	-37230.	1.39E-04	0.00	1.98E+11	726.5657	228096.	0.00
14.8000	-0.01458	565369.	-33777.	1.54E-04	0.00	1.99E+11	712.1423	234432.	0.00

15.2000	-0.01381	411442.	-30406.	1.66E-04	0.00	1.99E+11	692.5591	240768.	0.00
15.6000	-0.01299	273472.	-27139.	1.74E-04	0.00	1.99E+11	668.4796	247104.	0.00
16.0000	-0.01213	150904.	-23998.	1.80E-04	0.00	1.99E+11	640.5614	253440.	0.00
16.4000	-0.01126	43094.	-20998.	1.82E-04	0.00	1.99E+11	609.4468	259776.	0.00
16.8000	-0.01039	-50674.	-18153.	1.82E-04	0.00	1.99E+11	575.7571	266112.	0.00
17.2000	-0.00952	-131176.	-15475.	1.80E-04	0.00	1.99E+11	540.0877	272448.	0.00
17.6000	-0.00866	-199235.	-12972.	1.76E-04	0.00	1.99E+11	503.0018	278784.	0.00
18.0000	-0.00783	-255705.	-10648.	1.70E-04	0.00	1.99E+11	465.0267	285120.	0.00
18.4000	-0.00703	-301461.	-8508.	1.63E-04	0.00	1.99E+11	426.6498	291456.	0.00
18.8000	-0.00626	-337386.	-6553.	1.56E-04	0.00	1.99E+11	388.3180	297792.	0.00
19.2000	-0.00553	-364365.	-4780.	1.47E-04	0.00	1.99E+11	350.4340	304128.	0.00
19.6000	-0.00484	-383270.	-3186.	1.38E-04	0.00	1.99E+11	313.3549	310464.	0.00
20.0000	-0.00420	-394955.	-1769.	1.29E-04	0.00	1.99E+11	277.3929	316800.	0.00
20.4000	-0.00361	-400249.	-520.1419	1.19E-04	0.00	1.99E+11	242.8149	323136.	0.00
20.8000	-0.00306	-399948.	566.2406	1.10E-04	0.00	1.99E+11	209.8444	329472.	0.00
21.2000	-0.00255	-394813.	1499.	1.00E-04	0.00	1.99E+11	178.6624	335808.	0.00
21.6000	-0.00210	-385561.	2286.	9.07E-05	0.00	1.99E+11	149.4097	342144.	0.00
22.0000	-0.00168	-372867.	2938.	8.16E-05	0.00	1.99E+11	122.1893	348480.	0.00
22.4000	-0.00131	-357358.	3464.	7.28E-05	0.00	1.99E+11	97.0690	354816.	0.00
22.8000	-9.85E-04	-339612.	3875.	6.43E-05	0.00	1.99E+11	74.0841	361152.	0.00
23.2000	-6.95E-04	-320159.	4180.	5.64E-05	0.00	1.99E+11	53.2404	367488.	0.00
23.6000	-4.43E-04	-299480.	4391.	4.89E-05	0.00	1.99E+11	34.5176	373824.	0.00
24.0000	-2.26E-04	-278005.	4517.	4.20E-05	0.00	1.99E+11	17.8720	380160.	0.00
24.4000	-4.02E-05	-256118.	4567.	3.55E-05	0.00	1.99E+11	3.2399	386496.	0.00
24.8000	1.16E-04	-234157.	4553.	2.96E-05	0.00	1.99E+11	-9.4595	392832.	0.00
25.2000	2.44E-04	-212414.	4481.	2.43E-05	0.00	1.99E+11	-20.3205	399168.	0.00
25.6000	3.49E-04	-191139.	4362.	1.94E-05	0.00	1.99E+11	-29.4482	405504.	0.00
26.0000	4.31E-04	-170543.	4202.	1.51E-05	0.00	1.99E+11	-36.9563	411840.	0.00
26.4000	4.93E-04	-150798.	4010.	1.12E-05	0.00	1.99E+11	-42.9646	418176.	0.00
26.8000	5.38E-04	-132043.	3793.	7.79E-06	0.00	1.99E+11	-47.5968	424512.	0.00
27.2000	5.68E-04	-114384.	3557.	4.82E-06	0.00	1.99E+11	-50.9785	430848.	0.00
27.6000	5.84E-04	-97900.	3306.	2.27E-06	0.00	1.99E+11	-53.2351	437184.	0.00
28.0000	5.90E-04	-82643.	3048.	9.58E-08	0.00	1.99E+11	-54.4902	443520.	0.00
28.4000	5.85E-04	-68641.	2785.	-1.72E-06	0.00	1.99E+11	-54.8643	449856.	0.00
28.8000	5.73E-04	-55903.	2523.	-3.22E-06	0.00	1.99E+11	-54.4733	456192.	0.00
29.2000	5.54E-04	-44420.	2264.	-4.43E-06	0.00	1.99E+11	-53.4275	462528.	0.00
29.6000	5.31E-04	-34168.	2011.	-5.38E-06	0.00	1.99E+11	-51.8311	468864.	0.00
30.0000	5.03E-04	-25111.	1768.	-6.09E-06	0.00	1.99E+11	-49.7809	475200.	0.00
30.4000	4.72E-04	-17200.	1534.	-6.60E-06	0.00	1.99E+11	-47.3663	481536.	0.00
30.8000	4.39E-04	-10380.	1314.	-6.93E-06	0.00	1.99E+11	-44.6687	487872.	0.00
31.2000	4.06E-04	-4590.	1106.	-7.11E-06	0.00	1.99E+11	-41.7614	494208.	0.00
31.6000	3.71E-04	237.7951	912.9382	-7.16E-06	0.00	1.99E+11	-38.7094	500544.	0.00
32.0000	3.37E-04	4174.	734.6692	-7.11E-06	0.00	1.99E+11	-35.5694	506880.	0.00
32.4000	3.03E-04	7291.	571.5662	-6.97E-06	0.00	1.99E+11	-32.3902	513216.	0.00
32.8000	2.70E-04	9661.	423.7189	-6.77E-06	0.00	1.99E+11	-29.2128	519552.	0.00
33.2000	2.38E-04	11358.	291.0394	-6.52E-06	0.00	1.99E+11	-26.0704	525888.	0.00
33.6000	2.07E-04	12455.	173.2966	-6.23E-06	0.00	1.99E+11	-22.9892	532224.	0.00
34.0000	1.78E-04	13022.	70.1501	-5.92E-06	0.00	1.99E+11	-19.9886	538560.	0.00
34.4000	1.50E-04	13128.	-18.8186	-5.61E-06	0.00	1.99E+11	-17.0817	544896.	0.00
34.8000	1.24E-04	12841.	-94.0771	-5.30E-06	0.00	1.99E+11	-14.2760	551232.	0.00
35.2000	9.96E-05	12225.	-156.1160	-4.99E-06	0.00	1.99E+11	-11.5736	557568.	0.00
35.6000	7.64E-05	11343.	-205.4252	-4.71E-06	0.00	1.99E+11	-8.9719	563904.	0.00

36.0000	5.44E-05	10253.	-242.4726	-4.45E-06	0.00	1.99E+11	-6.4645	570240.	0.00
36.4000	3.36E-05	9015.	-267.6870	-4.22E-06	0.00	1.99E+11	-4.0415	576576.	0.00
36.8000	1.39E-05	7683.	-281.4427	-4.02E-06	0.00	1.99E+11	-1.6901	582912.	0.00
37.2000	-4.92E-06	6313.	-284.0483	-3.85E-06	0.00	1.99E+11	0.6044	589248.	0.00
37.6000	-2.30E-05	4957.	-275.7382	-3.71E-06	0.00	1.99E+11	2.8581	595584.	0.00
38.0000	-4.06E-05	3666.	-256.6677	-3.61E-06	0.00	1.99E+11	5.0879	601920.	0.00
38.4000	-5.77E-05	2493.	-226.9122	-3.54E-06	0.00	1.99E+11	7.3102	608256.	0.00
38.8000	-7.45E-05	1488.	-186.4694	-3.49E-06	0.00	1.99E+11	9.5409	614592.	0.00
39.2000	-9.12E-05	702.4231	-135.2662	-3.46E-06	0.00	1.99E+11	11.7938	620928.	0.00
39.6000	-1.08E-04	189.0099	-73.1691	-3.45E-06	0.00	1.99E+11	14.0800	627264.	0.00
40.0000	-1.24E-04	0.00	0.00	-3.45E-06	0.00	1.99E+11	16.4071	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 6:

```
Pile-head deflection              =     1.50000000 inches
Computed slope at pile head       =    -0.01779896 radians
Maximum bending moment            =       4660733. inch-lbs
Maximum shear force               =         80042. lbs
Depth of maximum bending moment   =     7.20000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             27
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 7

Pile-head conditions are Displacement and Moment (Loading Type 4)

```
Displacement of pile head                         =     1.750000 inches
Moment at pile head                               =          0.0 in-lbs
Axial load at pile head                           =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	0.00	81992.	-0.02063	0.00	1.99E+11	0.00	0.00	0.00
0.4000	1.6510	393560.	81798.	-0.02063	0.00	1.99E+11	-80.7936	234.8973	0.00
0.8000	1.5520	785259.	81194.	-0.02061	0.00	1.98E+11	-170.8707	528.4684	0.00
1.2000	1.4531	1173021.	80140.	-0.02059	0.00	1.97E+11	-268.1759	885.8583	0.00
1.6000	1.3544	1554604.	78609.	-0.02046	0.00	3.33E+10	-369.7822	1311.	0.00

2.0000	1.2567	1927667.	76585.	-0.02021	0.00	3.32E+10	-473.7308	1809.	0.00
2.4000	1.1603	2289815.	74061.	-0.01991	0.00	3.31E+10	-577.9347	2391.	0.00
2.8000	1.0656	2638648.	71045.	-0.01955	0.00	3.31E+10	-678.7131	3057.	0.00
3.2000	0.9727	2971844.	67544.	-0.01914	0.00	3.30E+10	-779.7007	3848.	0.00
3.6000	0.8818	3287075.	63545.	-0.01868	0.00	3.29E+10	-886.7908	4827.	0.00
4.0000	0.7933	3581874.	58996.	-0.01818	0.00	3.27E+10	-1009.	6103.	0.00
4.4000	0.7073	3853433.	53825.	-0.01762	0.00	3.11E+10	-1146.	7775.	0.00
4.8000	0.6242	4098596.	47969.	-0.01698	0.00	2.87E+10	-1295.	9956.	0.00
5.2000	0.5443	4313931.	41343.	-0.01624	0.00	2.58E+10	-1466.	12927.	0.00
5.6000	0.4683	4495491.	33913.	-0.01535	0.00	2.22E+10	-1630.	16706.	0.00
6.0000	0.3970	4639499.	25819.	-0.01430	0.00	1.97E+10	-1743.	21072.	0.00
6.4000	0.3310	4743356.	17240.	-0.01306	0.00	1.69E+10	-1832.	26562.	0.00
6.8000	0.2716	4805006.	8287.	-0.01163	0.00	1.53E+10	-1899.	33551.	0.00
7.2000	0.2194	4822912.	-911.8198	-0.01009	0.00	1.49E+10	-1934.	42312.	0.00
7.6000	0.1747	4796252.	-10217.	-0.00857	0.00	1.55E+10	-1943.	53370.	0.00
8.0000	0.1371	4724833.	-19545.	-0.00718	0.00	1.74E+10	-1944.	68053.	0.00
8.4000	0.1058	4608617.	-28819.	-0.00598	0.00	2.02E+10	-1920.	87084.	0.00
8.8000	0.07974	4448169.	-37904.	-0.00497	0.00	2.31E+10	-1865.	112283.	0.00
9.2000	0.05810	4244742.	-46614.	-0.00413	0.00	2.67E+10	-1764.	145728.	0.00
9.6000	0.04012	4000675.	-53898.	-0.00342	0.00	3.00E+10	-1271.	152064.	0.00
10.0000	0.02522	3727323.	-58946.	-0.00283	0.00	3.21E+10	-832.2369	158400.	0.00
10.4000	0.01299	3434797.	-62013.	-0.00230	0.00	3.28E+10	-445.8708	164736.	0.00
10.8000	0.00317	3131997.	-63355.	-0.00182	0.00	3.29E+10	-113.1289	171072.	0.00
11.2000	-0.00445	2826591.	-63231.	-0.00138	0.00	3.30E+10	164.5127	177408.	0.00
11.6000	-0.01010	2524976.	-61908.	-9.94E-04	0.00	3.31E+10	386.7480	183744.	0.00
12.0000	-0.01400	2232271.	-59650.	-6.50E-04	0.00	3.32E+10	554.2713	190080.	0.00
12.4000	-0.01634	1952337.	-56715.	-3.47E-04	0.00	3.32E+10	668.6070	196416.	0.00
12.8000	-0.01733	1687807.	-53354.	-8.44E-05	0.00	3.33E+10	731.9524	202752.	0.00
13.2000	-0.01715	1440142.	-49804.	5.48E-05	0.00	1.97E+11	747.0377	209088.	0.00
13.6000	-0.01680	1209688.	-46201.	8.71E-05	0.00	1.97E+11	754.0787	215424.	0.00
14.0000	-0.01631	996608.	-42583.	1.14E-04	0.00	1.98E+11	753.6729	221760.	0.00
14.4000	-0.01571	800893.	-38982.	1.36E-04	0.00	1.98E+11	746.4574	228096.	0.00
14.8000	-0.01501	622376.	-35432.	1.53E-04	0.00	1.99E+11	733.0960	234432.	0.00
15.2000	-0.01424	460750.	-31958.	1.66E-04	0.00	1.99E+11	714.2682	240768.	0.00
15.6000	-0.01342	315581.	-28586.	1.75E-04	0.00	1.99E+11	690.6591	247104.	0.00
16.0000	-0.01256	186324.	-25337.	1.81E-04	0.00	1.99E+11	662.9478	253440.	0.00
16.4000	-0.01167	72341.	-22230.	1.85E-04	0.00	1.99E+11	631.8005	259776.	0.00
16.8000	-0.01078	-27084.	-19279.	1.85E-04	0.00	1.99E+11	597.8619	266112.	0.00
17.2000	-0.00990	-112735.	-16496.	1.83E-04	0.00	1.99E+11	561.7510	272448.	0.00
17.6000	-0.00902	-185444.	-13890.	1.80E-04	0.00	1.99E+11	524.0550	278784.	0.00
18.0000	-0.00817	-246078.	-11467.	1.75E-04	0.00	1.99E+11	485.3244	285120.	0.00
18.4000	-0.00735	-295530.	-9232.	1.68E-04	0.00	1.99E+11	446.0694	291456.	0.00
18.8000	-0.00656	-334704.	-7185.	1.61E-04	0.00	1.99E+11	406.7590	297792.	0.00
19.2000	-0.00581	-364507.	-5326.	1.52E-04	0.00	1.99E+11	367.8169	304128.	0.00
19.6000	-0.00510	-385836.	-3652.	1.43E-04	0.00	1.99E+11	329.6204	310464.	0.00
20.0000	-0.00443	-399570.	-2159.	1.34E-04	0.00	1.99E+11	292.5003	316800.	0.00
20.4000	-0.00381	-406565.	-841.0723	1.24E-04	0.00	1.99E+11	256.7408	323136.	0.00
20.8000	-0.00324	-407644.	309.2995	1.14E-04	0.00	1.99E+11	222.5808	329472.	0.00
21.2000	-0.00272	-403595.	1300.	1.04E-04	0.00	1.99E+11	190.2157	335808.	0.00
21.6000	-0.00224	-395164.	2140.	9.46E-05	0.00	1.99E+11	159.7988	342144.	0.00
22.0000	-0.00181	-383051.	2839.	8.52E-05	0.00	1.99E+11	131.4440	348480.	0.00
22.4000	-0.00142	-367909.	3407.	7.62E-05	0.00	1.99E+11	105.2284	354816.	0.00

22.8000	-0.00108	-350343.	3854.	6.75E-05	0.00	1.99E+11	81.1954	361152.	0.00
23.2000	-7.75E-04	-330906.	4192.	5.93E-05	0.00	1.99E+11	59.3572	367488.	0.00
23.6000	-5.10E-04	-310102.	4430.	5.16E-05	0.00	1.99E+11	39.6985	373824.	0.00
24.0000	-2.80E-04	-288383.	4578.	4.44E-05	0.00	1.99E+11	22.1796	380160.	0.00
24.4000	-8.37E-05	-266153.	4647.	3.77E-05	0.00	1.99E+11	6.7391	386496.	0.00
24.8000	8.19E-05	-243768.	4648.	3.16E-05	0.00	1.99E+11	-6.7021	392832.	0.00
25.2000	2.19E-04	-221537.	4588.	2.60E-05	0.00	1.99E+11	-18.2384	399168.	0.00
25.6000	3.31E-04	-199726.	4477.	2.09E-05	0.00	1.99E+11	-27.9751	405504.	0.00
26.0000	4.20E-04	-178560.	4323.	1.63E-05	0.00	1.99E+11	-36.0271	411840.	0.00
26.4000	4.88E-04	-158224.	4135.	1.23E-05	0.00	1.99E+11	-42.5161	418176.	0.00
26.8000	5.38E-04	-138867.	3918.	8.71E-06	0.00	1.99E+11	-47.5681	424512.	0.00
27.2000	5.72E-04	-120607.	3681.	5.59E-06	0.00	1.99E+11	-51.3117	430848.	0.00
27.6000	5.92E-04	-103529.	3429.	2.89E-06	0.00	1.99E+11	-53.8752	437184.	0.00
28.0000	5.99E-04	-87692.	3166.	5.90E-07	0.00	1.99E+11	-55.3860	443520.	0.00
28.4000	5.97E-04	-73131.	2899.	-1.35E-06	0.00	1.99E+11	-55.9680	449856.	0.00
28.8000	5.87E-04	-59859.	2631.	-2.95E-06	0.00	1.99E+11	-55.7412	456192.	0.00
29.2000	5.69E-04	-47872.	2366.	-4.24E-06	0.00	1.99E+11	-54.8197	462528.	0.00
29.6000	5.46E-04	-37148.	2106.	-5.27E-06	0.00	1.99E+11	-53.3115	468864.	0.00
30.0000	5.18E-04	-27652.	1855.	-6.05E-06	0.00	1.99E+11	-51.3173	475200.	0.00
30.4000	4.88E-04	-19339.	1615.	-6.61E-06	0.00	1.99E+11	-48.9302	481536.	0.00
30.8000	4.55E-04	-12153.	1386.	-6.99E-06	0.00	1.99E+11	-46.2352	487872.	0.00
31.2000	4.21E-04	-6032.	1171.	-7.21E-06	0.00	1.99E+11	-43.3090	494208.	0.00
31.6000	3.86E-04	-908.7527	970.7662	-7.29E-06	0.00	1.99E+11	-40.2196	500544.	0.00
32.0000	3.51E-04	3288.	785.3748	-7.26E-06	0.00	1.99E+11	-37.0268	506880.	0.00
32.4000	3.16E-04	6631.	615.4332	-7.14E-06	0.00	1.99E+11	-33.7822	513216.	0.00
32.8000	2.82E-04	9196.	461.0868	-6.95E-06	0.00	1.99E+11	-30.5289	519552.	0.00
33.2000	2.49E-04	11057.	322.2916	-6.71E-06	0.00	1.99E+11	-27.3025	525888.	0.00
33.6000	2.18E-04	12290.	198.8514	-6.43E-06	0.00	1.99E+11	-24.1310	532224.	0.00
34.0000	1.87E-04	12966.	90.4519	-6.13E-06	0.00	1.99E+11	-21.0355	538560.	0.00
34.4000	1.59E-04	13158.	-3.3063	-5.81E-06	0.00	1.99E+11	-18.0304	544896.	0.00
34.8000	1.32E-04	12935.	-82.8778	-5.50E-06	0.00	1.99E+11	-15.1244	551232.	0.00
35.2000	1.06E-04	12362.	-148.7448	-5.19E-06	0.00	1.99E+11	-12.3202	557568.	0.00
35.6000	8.19E-05	11507.	-201.3923	-4.90E-06	0.00	1.99E+11	-9.6162	563904.	0.00
36.0000	5.90E-05	10429.	-241.2862	-4.64E-06	0.00	1.99E+11	-7.0063	570240.	0.00
36.4000	3.73E-05	9190.	-268.8547	-4.40E-06	0.00	1.99E+11	-4.4806	576576.	0.00
36.8000	1.67E-05	7848.	-284.4723	-4.20E-06	0.00	1.99E+11	-2.0267	582912.	0.00
37.2000	-3.02E-06	6459.	-288.4477	-4.03E-06	0.00	1.99E+11	0.3703	589248.	0.00
37.6000	-2.20E-05	5079.	-281.0148	-3.89E-06	0.00	1.99E+11	2.7267	595584.	0.00
38.0000	-4.03E-05	3762.	-262.3276	-3.78E-06	0.00	1.99E+11	5.0596	601920.	0.00
38.4000	-5.83E-05	2561.	-232.4582	-3.71E-06	0.00	1.99E+11	7.3860	608256.	0.00
38.8000	-7.59E-05	1530.	-191.3996	-3.66E-06	0.00	1.99E+11	9.7218	614592.	0.00
39.2000	-9.34E-05	723.2156	-139.0723	-3.63E-06	0.00	1.99E+11	12.0813	620928.	0.00
39.6000	-1.11E-04	194.8446	-75.3350	-3.62E-06	0.00	1.99E+11	14.4760	627264.	0.00
40.0000	-1.28E-04	0.00	0.00	-3.62E-06	0.00	1.99E+11	16.9136	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 7:

Pile-head deflection	=	1.75000000 inches
Computed slope at pile head	=	-0.02063043 radians
Maximum bending moment	=	4822912. inch-lbs
Maximum shear force	=	81992. lbs
Depth of maximum bending moment	=	7.20000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	54
Number of zero deflection points	=	3

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 8

Pile-head conditions are Displacement and Moment (Loading Type 4)

Displacement of pile head	=	2.000000 inches
Moment at pile head	=	0.0 in-lbs
Axial load at pile head	=	0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	0.00	83265.	-0.02343	0.00	1.99E+11	0.00	0.00	0.00
0.4000	1.8876	399673.	83071.	-0.02342	0.00	1.99E+11	-80.7936	205.4555	0.00
0.8000	1.7752	797485.	82467.	-0.02341	0.00	1.98E+11	-170.8707	462.0303	0.00
1.2000	1.6629	1191360.	81414.	-0.02338	0.00	1.97E+11	-268.1759	774.1140	0.00
1.6000	1.5507	1579056.	79883.	-0.02325	0.00	3.33E+10	-369.7823	1145.	0.00
2.0000	1.4396	1958232.	77858.	-0.02300	0.00	3.32E+10	-473.7309	1580.	0.00
2.4000	1.3299	2326493.	75334.	-0.02269	0.00	3.31E+10	-577.9349	2086.	0.00
2.8000	1.2218	2681439.	72311.	-0.02233	0.00	3.30E+10	-681.8367	2679.	0.00
3.2000	1.1156	3020676.	68796.	-0.02191	0.00	3.30E+10	-782.7953	3368.	0.00
3.6000	1.0115	3341876.	64799.	-0.02145	0.00	3.29E+10	-882.6022	4188.	0.00
4.0000	0.9097	3642742.	60287.	-0.02093	0.00	3.25E+10	-997.0848	5261.	0.00
4.4000	0.8105	3920635.	55189.	-0.02036	0.00	3.06E+10	-1127.	6675.	0.00
4.8000	0.7143	4172557.	49435.	-0.01969	0.00	2.76E+10	-1270.	8537.	0.00
5.2000	0.6215	4395210.	42939.	-0.01889	0.00	2.43E+10	-1436.	11092.	0.00
5.6000	0.5330	4584770.	35580.	-0.01792	0.00	2.06E+10	-1630.	14677.	0.00
6.0000	0.4495	4736783.	27388.	-0.01672	0.00	1.70E+10	-1784.	19048.	0.00
6.4000	0.3724	4847697.	18597.	-0.01524	0.00	1.43E+10	-1879.	24216.	0.00
6.8000	0.3032	4915318.	9411.	-0.01351	0.00	1.29E+10	-1949.	30851.	0.00
7.2000	0.2427	4938044.	-30.4968	-0.01163	0.00	1.22E+10	-1985.	39266.	0.00
7.6000	0.1916	4915025.	-9579.	-0.00974	0.00	1.29E+10	-1993.	49941.	0.00
8.0000	0.1492	4846085.	-19144.	-0.00801	0.00	1.44E+10	-1992.	64085.	0.00
8.4000	0.1146	4731244.	-28644.	-0.00654	0.00	1.72E+10	-1966.	82332.	0.00
8.8000	0.08639	4571103.	-37952.	-0.00536	0.00	2.09E+10	-1912.	106241.	0.00
9.2000	0.06319	4366908.	-46920.	-0.00441	0.00	2.49E+10	-1825.	138606.	0.00

9.6000	0.04405	4120670.	-54648.	-0.00364	0.00	2.83E+10	-1395.	152064.	0.00
10.0000	0.02825	3842283.	-60235.	-0.00300	0.00	3.12E+10	-932.1803	158400.	0.00
10.4000	0.01529	3542419.	-63731.	-0.00244	0.00	3.27E+10	-524.5921	164736.	0.00
10.8000	0.00482	3230467.	-65402.	-0.00195	0.00	3.29E+10	-171.6216	171072.	0.00
11.2000	-0.00339	2914562.	-65513.	-0.00150	0.00	3.30E+10	125.3547	177408.	0.00
11.6000	-0.00956	2601545.	-64333.	-0.00110	0.00	3.31E+10	366.0532	183744.	0.00
12.0000	-0.01392	2296962.	-62132.	-7.42E-04	0.00	3.31E+10	551.2541	190080.	0.00
12.4000	-0.01668	2005079.	-59171.	-4.30E-04	0.00	3.32E+10	682.6213	196416.	0.00
12.8000	-0.01805	1728925.	-55702.	-1.61E-04	0.00	3.33E+10	762.5351	202752.	0.00
13.2000	-0.01823	1470339.	-51967.	2.46E-05	0.00	5.80E+10	793.9408	209088.	0.00
13.6000	-0.01782	1230045.	-48142.	1.00E-04	0.00	1.97E+11	799.6056	215424.	0.00
14.0000	-0.01726	1008175.	-44309.	1.28E-04	0.00	1.98E+11	797.5478	221760.	0.00
14.4000	-0.01659	804679.	-40503.	1.50E-04	0.00	1.98E+11	788.4444	228096.	0.00
14.8000	-0.01583	619350.	-36755.	1.67E-04	0.00	1.99E+11	772.9989	234432.	0.00
15.2000	-0.01499	451831.	-33095.	1.80E-04	0.00	1.99E+11	751.9291	240768.	0.00
15.6000	-0.01410	301635.	-29548.	1.89E-04	0.00	1.99E+11	725.9565	247104.	0.00
16.0000	-0.01318	168166.	-26136.	1.94E-04	0.00	1.99E+11	695.7954	253440.	0.00
16.4000	-0.01223	50729.	-22877.	1.97E-04	0.00	1.99E+11	662.1439	259776.	0.00
16.8000	-0.01129	-51453.	-19786.	1.97E-04	0.00	1.99E+11	625.6774	266112.	0.00
17.2000	-0.01034	-139220.	-16876.	1.95E-04	0.00	1.99E+11	587.0428	272448.	0.00
17.6000	-0.00942	-213461.	-14154.	1.91E-04	0.00	1.99E+11	546.8526	278784.	0.00
18.0000	-0.00851	-275102.	-11628.	1.85E-04	0.00	1.99E+11	505.6799	285120.	0.00
18.4000	-0.00764	-325093.	-9301.	1.77E-04	0.00	1.99E+11	464.0561	291456.	0.00
18.8000	-0.00681	-364392.	-7173.	1.69E-04	0.00	1.99E+11	422.4672	297792.	0.00
19.2000	-0.00602	-393957.	-5244.	1.60E-04	0.00	1.99E+11	381.3516	304128.	0.00
19.6000	-0.00527	-414736.	-3510.	1.50E-04	0.00	1.99E+11	341.0986	310464.	0.00
20.0000	-0.00458	-427656.	-1967.	1.40E-04	0.00	1.99E+11	302.0480	316800.	0.00
20.4000	-0.00393	-433617.	-607.0383	1.30E-04	0.00	1.99E+11	264.4911	323136.	0.00
20.8000	-0.00333	-433483.	576.5521	1.19E-04	0.00	1.99E+11	228.6716	329472.	0.00
21.2000	-0.00278	-428082.	1593.	1.09E-04	0.00	1.99E+11	194.7873	335808.	0.00
21.6000	-0.00229	-418192.	2452.	9.86E-05	0.00	1.99E+11	162.9922	342144.	0.00
22.0000	-0.00184	-404547.	3163.	8.87E-05	0.00	1.99E+11	133.3993	348480.	0.00
22.4000	-0.00144	-387828.	3738.	7.91E-05	0.00	1.99E+11	106.0831	354816.	0.00
22.8000	-0.00108	-368666.	4187.	7.00E-05	0.00	1.99E+11	81.0829	361152.	0.00
23.2000	-7.63E-04	-347635.	4522.	6.14E-05	0.00	1.99E+11	58.4062	367488.	0.00
23.6000	-4.88E-04	-325259.	4753.	5.33E-05	0.00	1.99E+11	38.0315	373824.	0.00
24.0000	-2.51E-04	-302006.	4892.	4.57E-05	0.00	1.99E+11	19.9122	380160.	0.00
24.4000	-4.94E-05	-278294.	4949.	3.87E-05	0.00	1.99E+11	3.9799	386496.	0.00
24.8000	1.20E-04	-254491.	4935.	3.23E-05	0.00	1.99E+11	-9.8527	392832.	0.00
25.2000	2.61E-04	-230915.	4860.	2.65E-05	0.00	1.99E+11	-21.6881	399168.	0.00
25.6000	3.75E-04	-207838.	4732.	2.12E-05	0.00	1.99E+11	-31.6403	405504.	0.00
26.0000	4.64E-04	-185491.	4560.	1.65E-05	0.00	1.99E+11	-39.8324	411840.	0.00
26.4000	5.33E-04	-164061.	4353.	1.23E-05	0.00	1.99E+11	-46.3943	418176.	0.00
26.8000	5.82E-04	-143700.	4118.	8.55E-06	0.00	1.99E+11	-51.4601	424512.	0.00
27.2000	6.15E-04	-124525.	3862.	5.32E-06	0.00	1.99E+11	-55.1659	430848.	0.00
27.6000	6.33E-04	-106621.	3592.	2.54E-06	0.00	1.99E+11	-57.6476	437184.	0.00
28.0000	6.39E-04	-90045.	3312.	1.71E-07	0.00	1.99E+11	-59.0395	443520.	0.00
28.4000	6.35E-04	-74829.	3027.	-1.81E-06	0.00	1.99E+11	-59.4723	449856.	0.00
28.8000	6.22E-04	-60984.	2743.	-3.45E-06	0.00	1.99E+11	-59.0718	456192.	0.00
29.2000	6.01E-04	-48499.	2462.	-4.77E-06	0.00	1.99E+11	-57.9581	462528.	0.00
29.6000	5.76E-04	-37350.	2188.	-5.80E-06	0.00	1.99E+11	-56.2439	468864.	0.00
30.0000	5.46E-04	-27497.	1923.	-6.58E-06	0.00	1.99E+11	-54.0348	475200.	0.00

30.4000	5.13E-04	-18889.	1670.	-7.14E-06	0.00	1.99E+11	-51.4277	481536.	0.00
30.8000	4.77E-04	-11465.	1430.	-7.50E-06	0.00	1.99E+11	-48.5113	487872.	0.00
31.2000	4.41E-04	-5159.	1205.	-7.70E-06	0.00	1.99E+11	-45.3652	494208.	0.00
31.6000	4.03E-04	101.0047	994.9878	-7.76E-06	0.00	1.99E+11	-42.0601	500544.	0.00
32.0000	3.66E-04	4392.	801.2648	-7.71E-06	0.00	1.99E+11	-38.6578	506880.	0.00
32.4000	3.29E-04	7793.	623.9785	-7.56E-06	0.00	1.99E+11	-35.2114	513216.	0.00
32.8000	2.93E-04	10383.	463.2338	-7.34E-06	0.00	1.99E+11	-31.7655	519552.	0.00
33.2000	2.59E-04	12240.	318.9415	-7.07E-06	0.00	1.99E+11	-28.3563	525888.	0.00
33.6000	2.26E-04	13444.	190.8563	-6.76E-06	0.00	1.99E+11	-25.0125	532224.	0.00
34.0000	1.94E-04	14072.	78.6140	-6.43E-06	0.00	1.99E+11	-21.7552	538560.	0.00
34.4000	1.64E-04	14199.	-18.2355	-6.09E-06	0.00	1.99E+11	-18.5988	544896.	0.00
34.8000	1.35E-04	13897.	-100.1960	-5.75E-06	0.00	1.99E+11	-15.5514	551232.	0.00
35.2000	1.09E-04	13237.	-167.7968	-5.43E-06	0.00	1.99E+11	-12.6156	557568.	0.00
35.6000	8.33E-05	12287.	-221.5668	-5.12E-06	0.00	1.99E+11	-9.7886	563904.	0.00
36.0000	5.95E-05	11110.	-262.0118	-4.84E-06	0.00	1.99E+11	-7.0635	570240.	0.00
36.4000	3.69E-05	9771.	-289.5954	-4.59E-06	0.00	1.99E+11	-4.4296	576576.	0.00
36.8000	1.54E-05	8330.	-304.7223	-4.37E-06	0.00	1.99E+11	-1.8732	582912.	0.00
37.2000	-5.06E-06	6846.	-307.7261	-4.19E-06	0.00	1.99E+11	0.6216	589248.	0.00
37.6000	-2.48E-05	5376.	-298.8603	-4.04E-06	0.00	1.99E+11	3.0725	595584.	0.00
38.0000	-4.38E-05	3977.	-278.2925	-3.93E-06	0.00	1.99E+11	5.4974	601920.	0.00
38.4000	-6.25E-05	2704.	-246.1039	-3.85E-06	0.00	1.99E+11	7.9145	608256.	0.00
38.8000	-8.08E-05	1614.	-202.2913	-3.79E-06	0.00	1.99E+11	10.3407	614592.	0.00
39.2000	-9.89E-05	762.3258	-146.7747	-3.77E-06	0.00	1.99E+11	12.7912	620928.	0.00
39.6000	-1.17E-04	205.1613	-79.4089	-3.75E-06	0.00	1.99E+11	15.2779	627264.	0.00
40.0000	-1.35E-04	0.00	0.00	-3.75E-06	0.00	1.99E+11	17.8091	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 8:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =    -0.02342524 radians
Maximum bending moment            =       4938044. inch-lbs
Maximum shear force               =         83265. lbs
Depth of maximum bending moment   =     7.20000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             64
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 9

RsdArena 30 CIDH 20201028.lp10o

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 0.250000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	-3959957.	87630.	0.00	0.00	3.03E+10	-35.8968	344.6095	0.00
0.4000	0.2485	-3540477.	87153.	-5.94E-04	0.00	3.03E+10	-99.3113	1918.	0.00
0.8000	0.2443	-3123285.	86491.	-0.00110	0.00	3.29E+10	-176.7134	3472.	0.00
1.2000	0.2379	-2710165.	85459.	-0.00153	0.00	3.30E+10	-253.2798	5110.	0.00
1.6000	0.2296	-2302880.	84068.	-0.00189	0.00	3.31E+10	-326.0570	6815.	0.00
2.0000	0.2198	-1903107.	82299.	-0.00219	0.00	3.32E+10	-411.1348	8980.	0.00
2.4000	0.2086	-1512807.	80088.	-0.00244	0.00	3.33E+10	-510.2459	11743.	0.00
2.8000	0.1963	-1134263.	77364.	-0.00256	0.00	1.97E+11	-624.8885	15278.	0.00
3.2000	0.1840	-770117.	74043.	-0.00259	0.00	1.98E+11	-758.7449	19798.	0.00
3.6000	0.1715	-423452.	70105.	-0.00260	0.00	1.99E+11	-882.0356	24688.	0.00
4.0000	0.1590	-97109.	65630.	-0.00261	0.00	1.99E+11	-982.3788	29660.	0.00
4.4000	0.1465	206600.	60686.	-0.00261	0.00	1.99E+11	-1078.	35330.	0.00
4.8000	0.1340	485472.	55310.	-0.00260	0.00	1.99E+11	-1162.	41632.	0.00
5.2000	0.1215	737574.	49556.	-0.00258	0.00	1.98E+11	-1235.	48798.	0.00
5.6000	0.1092	961212.	43480.	-0.00256	0.00	1.98E+11	-1296.	57001.	0.00
6.0000	0.09692	1154982.	37159.	-0.00254	0.00	1.97E+11	-1338.	66245.	0.00
6.4000	0.08481	1317935.	30669.	-0.00251	0.00	1.97E+11	-1366.	77339.	0.00
6.8000	0.07285	1449404.	24051.	-0.00246	0.00	1.27E+11	-1391.	91633.	0.00
7.2000	0.06116	1548828.	17378.	-0.00232	0.00	3.33E+10	-1390.	109061.	0.00
7.6000	0.05054	1616236.	11001.	-0.00210	0.00	3.33E+10	-1268.	120384.	0.00
8.0000	0.04103	1654439.	5359.	-0.00186	0.00	3.33E+10	-1083.	126720.	0.00
8.4000	0.03267	1667683.	585.4832	-0.00162	0.00	3.33E+10	-905.7200	133056.	0.00
8.8000	0.02547	1660060.	-3363.	-0.00138	0.00	3.33E+10	-739.5712	139392.	0.00
9.2000	0.01941	1635396.	-6552.	-0.00114	0.00	3.33E+10	-589.2627	145728.	0.00
9.6000	0.01448	1597156.	-9068.	-9.11E-04	0.00	3.33E+10	-458.7948	152064.	0.00
10.0000	0.01066	1548346.	-11013.	-6.85E-04	0.00	3.33E+10	-351.7636	158400.	0.00
10.4000	0.00791	1491431.	-12509.	-4.78E-04	0.00	3.74E+10	-271.3709	164736.	0.00
10.8000	0.00607	1428263.	-13679.	-3.42E-04	0.00	8.58E+10	-216.4858	171072.	0.00
11.2000	0.00462	1360108.	-14609.	-2.85E-04	0.00	1.97E+11	-170.9383	177408.	0.00
11.6000	0.00333	1288014.	-15326.	-2.53E-04	0.00	1.97E+11	-127.6588	183744.	0.00
12.0000	0.00220	1212979.	-15841.	-2.23E-04	0.00	1.97E+11	-86.9383	190080.	0.00
12.4000	0.00120	1135941.	-16167.	-1.94E-04	0.00	1.97E+11	-49.0087	196416.	0.00
12.8000	3.33E-04	1057773.	-16319.	-1.67E-04	0.00	1.98E+11	-14.0466	202752.	0.00
13.2000	-4.09E-04	979283.	-16309.	-1.43E-04	0.00	1.98E+11	17.8254	209088.	0.00
13.6000	-0.00104	901202.	-16155.	-1.20E-04	0.00	1.98E+11	46.5347	215424.	0.00
14.0000	-0.00156	824194.	-15870.	-9.89E-05	0.00	1.98E+11	72.0537	221760.	0.00
14.4000	-0.00199	748846.	-15471.	-7.99E-05	0.00	1.98E+11	94.3967	228096.	0.00
14.8000	-0.00233	675673.	-14972.	-6.26E-05	0.00	1.98E+11	113.6167	234432.	0.00
15.2000	-0.00259	605118.	-14388.	-4.71E-05	0.00	1.99E+11	129.7982	240768.	0.00
15.6000	-0.00278	537553.	-13733.	-3.33E-05	0.00	1.99E+11	143.0548	247104.	0.00
16.0000	-0.00291	473284.	-13021.	-2.11E-05	0.00	1.99E+11	153.5254	253440.	0.00
16.4000	-0.00298	412553.	-12265.	-1.04E-05	0.00	1.99E+11	161.3688	259776.	0.00
16.8000	-0.00301	355539.	-11478.	-1.18E-06	0.00	1.99E+11	166.7591	266112.	0.00

17.2000	-0.00299	302368.	-10670.	6.75E-06	0.00	1.99E+11	169.8831	272448.	0.00
17.6000	-0.00294	253110.	-9852.	1.34E-05	0.00	1.99E+11	170.9367	278784.	0.00
18.0000	-0.00286	207791.	-9033.	1.90E-05	0.00	1.99E+11	170.1214	285120.	0.00
18.4000	-0.00276	166392.	-8223.	2.35E-05	0.00	1.99E+11	167.6394	291456.	0.00
18.8000	-0.00264	128855.	-7427.	2.70E-05	0.00	1.99E+11	163.6924	297792.	0.00
19.2000	-0.00250	95089.	-6654.	2.97E-05	0.00	1.99E+11	158.4792	304128.	0.00
19.6000	-0.00235	64975.	-5909.	3.17E-05	0.00	1.99E+11	152.1930	310464.	0.00
20.0000	-0.00220	38368.	-5195.	3.29E-05	0.00	1.99E+11	145.0200	316800.	0.00
20.4000	-0.00204	15101.	-4518.	3.36E-05	0.00	1.99E+11	137.1374	323136.	0.00
20.8000	-0.00188	-5006.	-3880.	3.37E-05	0.00	1.99E+11	128.7121	329472.	0.00
21.2000	-0.00171	-22147.	-3283.	3.33E-05	0.00	1.99E+11	119.8999	335808.	0.00
21.6000	-0.00156	-36525.	-2730.	3.26E-05	0.00	1.99E+11	110.8441	342144.	0.00
22.0000	-0.00140	-48350.	-2219.	3.16E-05	0.00	1.99E+11	101.6755	348480.	0.00
22.4000	-0.00125	-57833.	-1753.	3.03E-05	0.00	1.99E+11	92.5118	354816.	0.00
22.8000	-0.00111	-65183.	-1331.	2.89E-05	0.00	1.99E+11	83.4576	361152.	0.00
23.2000	-9.74E-04	-70611.	-951.7666	2.72E-05	0.00	1.99E+11	74.6043	367488.	0.00
23.6000	-8.48E-04	-74320.	-614.2431	2.55E-05	0.00	1.99E+11	66.0305	373824.	0.00
24.0000	-7.30E-04	-76508.	-317.0436	2.37E-05	0.00	1.99E+11	57.8026	380160.	0.00
24.4000	-6.21E-04	-77364.	-58.3775	2.18E-05	0.00	1.99E+11	49.9749	386496.	0.00
24.8000	-5.20E-04	-77068.	163.7795	2.00E-05	0.00	1.99E+11	42.5905	392832.	0.00
25.2000	-4.29E-04	-75792.	351.6333	1.81E-05	0.00	1.99E+11	35.6819	399168.	0.00
25.6000	-3.46E-04	-73693.	507.5227	1.63E-05	0.00	1.99E+11	29.2720	405504.	0.00
26.0000	-2.72E-04	-70919.	633.8746	1.46E-05	0.00	1.99E+11	23.3746	411840.	0.00
26.4000	-2.07E-04	-67608.	733.1629	1.29E-05	0.00	1.99E+11	17.9955	418176.	0.00
26.8000	-1.49E-04	-63881.	807.8723	1.13E-05	0.00	1.99E+11	13.1334	424512.	0.00
27.2000	-9.78E-05	-59852.	860.4654	9.84E-06	0.00	1.99E+11	8.7804	430848.	0.00
27.6000	-5.41E-05	-55621.	893.3548	8.45E-06	0.00	1.99E+11	4.9235	437184.	0.00
28.0000	-1.67E-05	-51276.	908.8789	7.16E-06	0.00	1.99E+11	1.5449	443520.	0.00
28.4000	1.47E-05	-46895.	909.2814	5.98E-06	0.00	1.99E+11	-1.3771	449856.	0.00
28.8000	4.07E-05	-42547.	896.6951	4.90E-06	0.00	1.99E+11	-3.8671	456192.	0.00
29.2000	6.18E-05	-38287.	873.1291	3.93E-06	0.00	1.99E+11	-5.9521	462528.	0.00
29.6000	7.84E-05	-34165.	840.4588	3.06E-06	0.00	1.99E+11	-7.6606	468864.	0.00
30.0000	9.11E-05	-30219.	800.4201	2.28E-06	0.00	1.99E+11	-9.0222	475200.	0.00
30.4000	1.00E-04	-26481.	754.6054	1.60E-06	0.00	1.99E+11	-10.0672	481536.	0.00
30.8000	1.07E-04	-22974.	704.4628	1.01E-06	0.00	1.99E+11	-10.8255	487872.	0.00
31.2000	1.10E-04	-19718.	651.2972	4.93E-07	0.00	1.99E+11	-11.3268	494208.	0.00
31.6000	1.11E-04	-16722.	596.2732	5.40E-08	0.00	1.99E+11	-11.5998	500544.	0.00
32.0000	1.11E-04	-13994.	540.4209	-3.16E-07	0.00	1.99E+11	-11.6720	506880.	0.00
32.4000	1.08E-04	-11534.	484.6415	-6.23E-07	0.00	1.99E+11	-11.5694	513216.	0.00
32.8000	1.05E-04	-9341.	429.7151	-8.74E-07	0.00	1.99E+11	-11.3165	519552.	0.00
33.2000	9.98E-05	-7409.	376.3097	-1.08E-06	0.00	1.99E+11	-10.9357	525888.	0.00
33.6000	9.42E-05	-5728.	324.9900	-1.23E-06	0.00	1.99E+11	-10.4475	532224.	0.00
34.0000	8.80E-05	-4289.	276.2275	-1.35E-06	0.00	1.99E+11	-9.8702	538560.	0.00
34.4000	8.12E-05	-3077.	230.4103	-1.44E-06	0.00	1.99E+11	-9.2202	544896.	0.00
34.8000	7.41E-05	-2077.	187.8539	-1.51E-06	0.00	1.99E+11	-8.5116	551232.	0.00
35.2000	6.68E-05	-1273.	148.8109	-1.55E-06	0.00	1.99E+11	-7.7563	557568.	0.00
35.6000	5.93E-05	-648.2617	113.4813	-1.57E-06	0.00	1.99E+11	-6.9644	563904.	0.00
36.0000	5.17E-05	-183.7813	82.0217	-1.58E-06	0.00	1.99E+11	-6.1438	570240.	0.00
36.4000	4.41E-05	139.1470	54.5553	-1.58E-06	0.00	1.99E+11	-5.3006	576576.	0.00
36.8000	3.66E-05	339.9492	31.1793	-1.57E-06	0.00	1.99E+11	-4.4394	582912.	0.00
37.2000	2.90E-05	438.4679	11.9735	-1.56E-06	0.00	1.99E+11	-3.5630	589248.	0.00
37.6000	2.15E-05	454.8952	-2.9929	-1.55E-06	0.00	1.99E+11	-2.6730	595584.	0.00

38.0000	1.41E-05	409.7362	-13.6558	-1.54E-06	0.00	1.99E+11	-1.7699	601920.	0.00
38.4000	6.73E-06	323.7997	-19.9509	-1.53E-06	0.00	1.99E+11	-0.8531	608256.	0.00
38.8000	-6.12E-07	218.2078	-21.8102	-1.53E-06	0.00	1.99E+11	0.07836	614592.	0.00
39.2000	-7.93E-06	114.4214	-19.1599	-1.52E-06	0.00	1.99E+11	1.0259	620928.	0.00
39.6000	-1.52E-05	34.2729	-11.9189	-1.52E-06	0.00	1.99E+11	1.9911	627264.	0.00
40.0000	-2.25E-05	0.00	0.00	-1.52E-06	0.00	1.99E+11	2.9751	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 9:

```
Pile-head deflection                =     0.25000000 inches
Computed slope at pile head         =       0.000000 radians
Maximum bending moment              =      -3959957. inch-lbs
Maximum shear force                 =         87630. lbs
Depth of maximum bending moment     =       0.000000 feet below pile head
Depth of maximum shear force        =       0.000000 feet below pile head
Number of iterations                =             20
Number of zero deflection points    =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 10

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.500000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	-4936487.	106759.	0.00	0.00	1.22E+10	-62.5000	300.0000	0.00
0.4000	0.4954	-4425411.	106190.	-0.00184	0.00	1.22E+10	-118.4715	1148.	0.00
0.8000	0.4824	-3917064.	105464.	-0.00301	0.00	3.06E+10	-183.8035	1829.	0.00
1.2000	0.4665	-3412952.	104403.	-0.00357	0.00	3.28E+10	-258.2711	2658.	0.00
1.6000	0.4481	-2914791.	102967.	-0.00403	0.00	3.30E+10	-340.1993	3644.	0.00
2.0000	0.4278	-2424468.	101117.	-0.00442	0.00	3.31E+10	-430.7925	4834.	0.00
2.4000	0.4057	-1944070.	98809.	-0.00473	0.00	3.32E+10	-530.9810	6282.	0.00
2.8000	0.3823	-1475906.	95993.	-0.00495	0.00	4.43E+10	-641.9656	8059.	0.00
3.2000	0.3582	-1022533.	92615.	-0.00505	0.00	1.98E+11	-765.8620	10263.	0.00
3.6000	0.3339	-586806.	88634.	-0.00506	0.00	1.99E+11	-892.6246	12831.	0.00

4.0000	0.3096	-171644.	84058.	-0.00507	0.00	1.99E+11	-1014.	15727.	0.00
4.4000	0.2852	220148.	78903.	-0.00507	0.00	1.99E+11	-1134.	19078.	0.00
4.8000	0.2609	585822.	73198.	-0.00506	0.00	1.99E+11	-1243.	22876.	0.00
5.2000	0.2366	922853.	66984.	-0.00505	0.00	1.98E+11	-1346.	27314.	0.00
5.6000	0.2124	1228865.	60298.	-0.00502	0.00	1.97E+11	-1439.	32523.	0.00
6.0000	0.1884	1501715.	53207.	-0.00490	0.00	3.33E+10	-1515.	38602.	0.00
6.4000	0.1654	1739655.	45784.	-0.00466	0.00	3.33E+10	-1578.	45780.	0.00
6.8000	0.1436	1941244.	38079.	-0.00440	0.00	3.32E+10	-1633.	54565.	0.00
7.2000	0.1232	2105210.	30162.	-0.00410	0.00	3.32E+10	-1666.	64894.	0.00
7.6000	0.1042	2230797.	22126.	-0.00379	0.00	3.32E+10	-1682.	77466.	0.00
8.0000	0.08682	2317622.	13998.	-0.00346	0.00	3.31E+10	-1704.	94225.	0.00
8.4000	0.07101	2365181.	5817.	-0.00312	0.00	3.31E+10	-1704.	115213.	0.00
8.8000	0.05684	2373470.	-2235.	-0.00278	0.00	3.31E+10	-1651.	139392.	0.00
9.2000	0.04433	2343725.	-9427.	-0.00244	0.00	3.31E+10	-1346.	145728.	0.00
9.6000	0.03345	2282973.	-15200.	-0.00210	0.00	3.31E+10	-1060.	152064.	0.00
10.0000	0.02415	2197808.	-19655.	-0.00178	0.00	3.32E+10	-796.8661	158400.	0.00
10.4000	0.01638	2094284.	-22916.	-0.00147	0.00	3.32E+10	-562.0381	164736.	0.00
10.8000	0.01006	1977810.	-25126.	-0.00117	0.00	3.32E+10	-358.4995	171072.	0.00
11.2000	0.00511	1853076.	-26440.	-8.97E-04	0.00	3.33E+10	-188.9733	177408.	0.00
11.6000	0.00145	1723989.	-27027.	-6.39E-04	0.00	3.33E+10	-55.5330	183744.	0.00
12.0000	-0.00102	1593622.	-27063.	-4.00E-04	0.00	3.33E+10	40.3250	190080.	0.00
12.4000	-0.00239	1464184.	-26732.	-2.28E-04	0.00	6.15E+10	97.6117	196416.	0.00
12.8000	-0.00320	1336995.	-26173.	-1.54E-04	0.00	1.97E+11	135.3217	202752.	0.00
13.2000	-0.00387	1212924.	-25444.	-1.23E-04	0.00	1.97E+11	168.3769	209088.	0.00
13.6000	-0.00439	1092732.	-24568.	-9.51E-05	0.00	1.97E+11	196.8191	215424.	0.00
14.0000	-0.00478	977075.	-23565.	-6.99E-05	0.00	1.98E+11	220.7436	221760.	0.00
14.4000	-0.00506	866504.	-22459.	-4.76E-05	0.00	1.98E+11	240.2946	228096.	0.00
14.8000	-0.00523	761470.	-21269.	-2.78E-05	0.00	1.98E+11	255.6561	234432.	0.00
15.2000	-0.00532	662325.	-20014.	-1.06E-05	0.00	1.98E+11	267.0480	240768.	0.00
15.6000	-0.00534	569334.	-18714.	4.28E-06	0.00	1.99E+11	274.7168	247104.	0.00
16.0000	-0.00528	482672.	-17385.	1.70E-05	0.00	1.99E+11	278.9316	253440.	0.00
16.4000	-0.00517	402436.	-16044.	2.77E-05	0.00	1.99E+11	279.9787	259776.	0.00
16.8000	-0.00502	328651.	-14704.	3.65E-05	0.00	1.99E+11	278.1533	266112.	0.00
17.2000	-0.00482	261275.	-13380.	4.36E-05	0.00	1.99E+11	273.7576	272448.	0.00
17.6000	-0.00460	200206.	-12082.	4.91E-05	0.00	1.99E+11	267.0958	278784.	0.00
18.0000	-0.00435	145291.	-10820.	5.33E-05	0.00	1.99E+11	258.4677	285120.	0.00
18.4000	-0.00409	96332.	-9604.	5.62E-05	0.00	1.99E+11	248.1670	291456.	0.00
18.8000	-0.00381	53090.	-8441.	5.80E-05	0.00	1.99E+11	236.4783	297792.	0.00
19.2000	-0.00353	15296.	-7337.	5.88E-05	0.00	1.99E+11	223.6740	304128.	0.00
19.6000	-0.00325	-17344.	-6296.	5.88E-05	0.00	1.99E+11	210.0122	310464.	0.00
20.0000	-0.00297	-45146.	-5322.	5.81E-05	0.00	1.99E+11	195.7349	316800.	0.00
20.4000	-0.00269	-68437.	-4418.	5.67E-05	0.00	1.99E+11	181.0661	323136.	0.00
20.8000	-0.00242	-87557.	-3584.	5.48E-05	0.00	1.99E+11	166.2114	329472.	0.00
21.2000	-0.00216	-102848.	-2822.	5.25E-05	0.00	1.99E+11	151.3565	335808.	0.00
21.6000	-0.00192	-114651.	-2131.	4.99E-05	0.00	1.99E+11	136.6674	342144.	0.00
22.0000	-0.00168	-123305.	-1509.	4.70E-05	0.00	1.99E+11	122.2902	348480.	0.00
22.4000	-0.00147	-129142.	-955.9549	4.40E-05	0.00	1.99E+11	108.3512	354816.	0.00
22.8000	-0.00126	-132482.	-468.0136	4.08E-05	0.00	1.99E+11	94.9577	361152.	0.00
23.2000	-0.00107	-133635.	-42.8395	3.76E-05	0.00	1.99E+11	82.1982	367488.	0.00
23.6000	-9.01E-04	-132894.	322.7810	3.44E-05	0.00	1.99E+11	70.1437	373824.	0.00
24.0000	-7.43E-04	-130536.	632.3626	3.13E-05	0.00	1.99E+11	58.8486	380160.	0.00
24.4000	-6.00E-04	-126823.	889.6437	2.82E-05	0.00	1.99E+11	48.3518	386496.	0.00

24.8000	-4.73E-04	-121996.	1099.	2.52E-05	0.00	1.99E+11	38.6779	392832.	0.00
25.2000	-3.59E-04	-116277.	1263.	2.23E-05	0.00	1.99E+11	29.8384	399168.	0.00
25.6000	-2.58E-04	-109871.	1387.	1.96E-05	0.00	1.99E+11	21.8335	405504.	0.00
26.0000	-1.71E-04	-102962.	1475.	1.70E-05	0.00	1.99E+11	14.6528	411840.	0.00
26.4000	-9.50E-05	-95716.	1530.	1.46E-05	0.00	1.99E+11	8.2771	418176.	0.00
26.8000	-3.03E-05	-88278.	1556.	1.24E-05	0.00	1.99E+11	2.6793	424512.	0.00
27.2000	2.42E-05	-80779.	1557.	1.04E-05	0.00	1.99E+11	-2.1738	430848.	0.00
27.6000	6.94E-05	-73330.	1537.	8.53E-06	0.00	1.99E+11	-6.3207	437184.	0.00
28.0000	1.06E-04	-66027.	1498.	6.85E-06	0.00	1.99E+11	-9.8041	443520.	0.00
28.4000	1.35E-04	-58950.	1444.	5.35E-06	0.00	1.99E+11	-12.6694	449856.	0.00
28.8000	1.57E-04	-52164.	1378.	4.01E-06	0.00	1.99E+11	-14.9642	456192.	0.00
29.2000	1.74E-04	-45724.	1302.	2.83E-06	0.00	1.99E+11	-16.7370	462528.	0.00
29.6000	1.85E-04	-39668.	1218.	1.81E-06	0.00	1.99E+11	-18.0366	468864.	0.00
30.0000	1.91E-04	-34029.	1130.	9.19E-07	0.00	1.99E+11	-18.9115	475200.	0.00
30.4000	1.93E-04	-28825.	1038.	1.62E-07	0.00	1.99E+11	-19.4087	481536.	0.00
30.8000	1.93E-04	-24068.	943.9899	-4.75E-07	0.00	1.99E+11	-19.5739	487872.	0.00
31.2000	1.89E-04	-19763.	850.3314	-1.00E-06	0.00	1.99E+11	-19.4505	494208.	0.00
31.6000	1.83E-04	-15905.	757.8602	-1.43E-06	0.00	1.99E+11	-19.0792	500544.	0.00
32.0000	1.75E-04	-12487.	667.6744	-1.77E-06	0.00	1.99E+11	-18.4982	506880.	0.00
32.4000	1.66E-04	-9496.	580.6970	-2.04E-06	0.00	1.99E+11	-17.7424	513216.	0.00
32.8000	1.56E-04	-6913.	497.6911	-2.24E-06	0.00	1.99E+11	-16.8434	519552.	0.00
33.2000	1.44E-04	-4718.	419.2758	-2.38E-06	0.00	1.99E+11	-15.8297	525888.	0.00
33.6000	1.33E-04	-2888.	345.9418	-2.47E-06	0.00	1.99E+11	-14.7261	532224.	0.00
34.0000	1.21E-04	-1397.	278.0687	-2.52E-06	0.00	1.99E+11	-13.5543	538560.	0.00
34.4000	1.09E-04	-218.1600	215.9403	-2.54E-06	0.00	1.99E+11	-12.3325	544896.	0.00
34.8000	9.64E-05	676.2828	159.7606	-2.53E-06	0.00	1.99E+11	-11.0757	551232.	0.00
35.2000	8.43E-05	1316.	109.6691	-2.51E-06	0.00	1.99E+11	-9.7957	557568.	0.00
35.6000	7.24E-05	1729.	65.7553	-2.47E-06	0.00	1.99E+11	-8.5017	563904.	0.00
36.0000	6.06E-05	1947.	28.0719	-2.43E-06	0.00	1.99E+11	-7.1998	570240.	0.00
36.4000	4.91E-05	1999.	-3.3527	-2.38E-06	0.00	1.99E+11	-5.8938	576576.	0.00
36.8000	3.78E-05	1915.	-28.5029	-2.33E-06	0.00	1.99E+11	-4.5854	582912.	0.00
37.2000	2.67E-05	1725.	-47.3664	-2.29E-06	0.00	1.99E+11	-3.2744	589248.	0.00
37.6000	1.58E-05	1460.	-59.9260	-2.25E-06	0.00	1.99E+11	-1.9588	595584.	0.00
38.0000	5.07E-06	1150.	-66.1524	-2.22E-06	0.00	1.99E+11	-0.6356	601920.	0.00
38.4000	-5.52E-06	824.8257	-66.0000	-2.20E-06	0.00	1.99E+11	0.6991	608256.	0.00
38.8000	-1.60E-05	516.0792	-59.4034	-2.18E-06	0.00	1.99E+11	2.0495	614592.	0.00
39.2000	-2.64E-05	254.5527	-46.2770	-2.17E-06	0.00	1.99E+11	3.4199	620928.	0.00
39.6000	-3.68E-05	71.8199	-26.5159	-2.17E-06	0.00	1.99E+11	4.8139	627264.	0.00
40.0000	-4.72E-05	0.00	0.00	-2.17E-06	0.00	1.99E+11	6.2344	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 10:

Pile-head deflection = 0.50000000 inches
Computed slope at pile head = 0.000000 radians

```
Maximum bending moment           =      -4936487. inch-lbs
Maximum shear force              =        106759. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             74
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 11

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                          =     0.750000 inches
Rotation of pile head                              =    0.000E+00 radians
Axial load on pile head                            =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	-5045793.	116381.	0.00	0.00	6.49E+09	-37.5000	120.0000	0.00
0.4000	0.7410	-4488365.	115881.	-0.00352	0.00	6.49E+09	-104.1139	674.3786	0.00
0.8000	0.7162	-3933336.	115200.	-0.00549	0.00	3.05E+10	-179.5800	1204.	0.00
1.2000	0.6883	-3382445.	114141.	-0.00605	0.00	3.28E+10	-261.6192	1824.	0.00
1.6000	0.6581	-2837581.	112675.	-0.00650	0.00	3.30E+10	-349.4566	2549.	0.00
2.0000	0.6259	-2300769.	110772.	-0.00688	0.00	3.31E+10	-443.2269	3399.	0.00
2.4000	0.5921	-1774169.	108404.	-0.00717	0.00	3.33E+10	-543.6003	4407.	0.00
2.8000	0.5571	-1260094.	105534.	-0.00731	0.00	1.97E+11	-651.9771	5618.	0.00
3.2000	0.5219	-761039.	102122.	-0.00734	0.00	1.98E+11	-769.9369	7081.	0.00
3.6000	0.4866	-279725.	98117.	-0.00735	0.00	1.99E+11	-898.6862	8865.	0.00
4.0000	0.4513	180884.	93481.	-0.00735	0.00	1.99E+11	-1033.	10985.	0.00
4.4000	0.4160	617696.	88203.	-0.00734	0.00	1.99E+11	-1166.	13457.	0.00
4.8000	0.3808	1027635.	82303.	-0.00732	0.00	1.98E+11	-1292.	16284.	0.00
5.2000	0.3457	1407808.	75809.	-0.00729	0.00	1.97E+11	-1414.	19629.	0.00
5.6000	0.3108	1755406.	68749.	-0.00715	0.00	3.33E+10	-1528.	23599.	0.00
6.0000	0.2771	2067795.	61172.	-0.00687	0.00	3.32E+10	-1629.	28216.	0.00
6.4000	0.2448	2342652.	53142.	-0.00655	0.00	3.31E+10	-1717.	33655.	0.00
6.8000	0.2142	2577956.	44714.	-0.00620	0.00	3.31E+10	-1795.	40220.	0.00
7.2000	0.1854	2771907.	35963.	-0.00581	0.00	3.30E+10	-1852.	47949.	0.00
7.6000	0.1584	2923197.	26982.	-0.00539	0.00	3.30E+10	-1890.	57272.	0.00
8.0000	0.1336	3030930.	17813.	-0.00496	0.00	3.29E+10	-1930.	69341.	0.00
8.4000	0.1108	3094205.	8511.	-0.00451	0.00	3.29E+10	-1946.	84307.	0.00
8.8000	0.09024	3112634.	-811.7416	-0.00406	0.00	3.29E+10	-1938.	103088.	0.00
9.2000	0.07183	3086413.	-10025.	-0.00361	0.00	3.29E+10	-1901.	127038.	0.00
9.6000	0.05558	3016391.	-18814.	-0.00317	0.00	3.30E+10	-1761.	152064.	0.00
10.0000	0.04144	2905801.	-26322.	-0.00273	0.00	3.30E+10	-1368.	158400.	0.00
10.4000	0.02933	2763703.	-32020.	-0.00232	0.00	3.30E+10	-1007.	164736.	0.00
10.8000	0.01915	2598411.	-36074.	-0.00193	0.00	3.31E+10	-682.5401	171072.	0.00
11.2000	0.01078	2417393.	-38668.	-0.00157	0.00	3.31E+10	-398.4549	177408.	0.00

11.6000	0.00409	2227195.	-40001.	-0.00123	0.00	3.32E+10	-156.6615	183744.	0.00
12.0000	-0.00105	2033387.	-40277.	-9.24E-04	0.00	3.32E+10	41.5115	190080.	0.00
12.4000	-0.00478	1840536.	-39708.	-6.44E-04	0.00	3.33E+10	195.5332	196416.	0.00
12.8000	-0.00723	1652190.	-38505.	-3.92E-04	0.00	3.33E+10	305.5473	202752.	0.00
13.2000	-0.00855	1470884.	-36879.	-1.72E-04	0.00	3.47E+10	372.2585	209088.	0.00
13.6000	-0.00888	1298154.	-35029.	-5.40E-05	0.00	1.97E+11	398.5727	215424.	0.00
14.0000	-0.00906	1134608.	-33067.	-2.44E-05	0.00	1.97E+11	418.7566	221760.	0.00
14.4000	-0.00911	980710.	-31023.	1.34E-06	0.00	1.98E+11	433.1297	228096.	0.00
14.8000	-0.00905	836791.	-28922.	2.34E-05	0.00	1.98E+11	442.0558	234432.	0.00
15.2000	-0.00889	703057.	-26791.	4.20E-05	0.00	1.98E+11	445.9308	240768.	0.00
15.6000	-0.00865	579597.	-24652.	5.75E-05	0.00	1.99E+11	445.1768	247104.	0.00
16.0000	-0.00834	466394.	-22527.	7.02E-05	0.00	1.99E+11	440.2324	253440.	0.00
16.4000	-0.00797	363334.	-20435.	8.02E-05	0.00	1.99E+11	431.5459	259776.	0.00
16.8000	-0.00757	270217.	-18392.	8.78E-05	0.00	1.99E+11	419.5673	266112.	0.00
17.2000	-0.00713	186767.	-16414.	9.33E-05	0.00	1.99E+11	404.7444	272448.	0.00
17.6000	-0.00667	112642.	-14513.	9.69E-05	0.00	1.99E+11	387.5140	278784.	0.00
18.0000	-0.00620	47446.	-12699.	9.89E-05	0.00	1.99E+11	368.2996	285120.	0.00
18.4000	-0.00572	-9265.	-10981.	9.93E-05	0.00	1.99E+11	347.5068	291456.	0.00
18.8000	-0.00525	-57970.	-9366.	9.85E-05	0.00	1.99E+11	325.5207	297792.	0.00
19.2000	-0.00478	-99174.	-7858.	9.66E-05	0.00	1.99E+11	302.7018	304128.	0.00
19.6000	-0.00432	-133404.	-6461.	9.38E-05	0.00	1.99E+11	279.3847	310464.	0.00
20.0000	-0.00388	-161197.	-5176.	9.03E-05	0.00	1.99E+11	255.8758	316800.	0.00
20.4000	-0.00345	-183095.	-4004.	8.61E-05	0.00	1.99E+11	232.4522	323136.	0.00
20.8000	-0.00305	-199637.	-2944.	8.15E-05	0.00	1.99E+11	209.3614	329472.	0.00
21.2000	-0.00267	-211356.	-1993.	7.66E-05	0.00	1.99E+11	186.8209	335808.	0.00
21.6000	-0.00232	-218770.	-1149.	7.14E-05	0.00	1.99E+11	165.0185	342144.	0.00
22.0000	-0.00199	-222382.	-406.6267	6.61E-05	0.00	1.99E+11	144.1130	348480.	0.00
22.4000	-0.00168	-222673.	237.4099	6.07E-05	0.00	1.99E+11	124.2356	354816.	0.00
22.8000	-0.00140	-220102.	788.7520	5.54E-05	0.00	1.99E+11	105.4903	361152.	0.00
23.2000	-0.00115	-215101.	1253.	5.02E-05	0.00	1.99E+11	87.9564	367488.	0.00
23.6000	-9.21E-04	-208073.	1636.	4.51E-05	0.00	1.99E+11	71.6896	373824.	0.00
24.0000	-7.16E-04	-199394.	1944.	4.02E-05	0.00	1.99E+11	56.7239	380160.	0.00
24.4000	-5.35E-04	-189408.	2184.	3.55E-05	0.00	1.99E+11	43.0739	386496.	0.00
24.8000	-3.76E-04	-178429.	2361.	3.11E-05	0.00	1.99E+11	30.7363	392832.	0.00
25.2000	-2.37E-04	-166742.	2482.	2.69E-05	0.00	1.99E+11	19.6923	399168.	0.00
25.6000	-1.17E-04	-154601.	2553.	2.30E-05	0.00	1.99E+11	9.9095	405504.	0.00
26.0000	-1.57E-05	-142232.	2580.	1.95E-05	0.00	1.99E+11	1.3438	411840.	0.00
26.4000	6.95E-05	-129832.	2569.	1.62E-05	0.00	1.99E+11	-6.0586	418176.	0.00
26.8000	1.40E-04	-117572.	2525.	1.32E-05	0.00	1.99E+11	-12.3593	424512.	0.00
27.2000	1.96E-04	-105596.	2453.	1.05E-05	0.00	1.99E+11	-17.6261	430848.	0.00
27.6000	2.41E-04	-94026.	2358.	8.12E-06	0.00	1.99E+11	-21.9311	437184.	0.00
28.0000	2.74E-04	-82962.	2244.	5.99E-06	0.00	1.99E+11	-25.3496	443520.	0.00
28.4000	2.98E-04	-72482.	2116.	4.12E-06	0.00	1.99E+11	-27.9583	449856.	0.00
28.8000	3.14E-04	-62646.	1978.	2.50E-06	0.00	1.99E+11	-29.8345	456192.	0.00
29.2000	3.22E-04	-53497.	1831.	1.10E-06	0.00	1.99E+11	-31.0543	462528.	0.00
29.6000	3.24E-04	-45064.	1681.	-8.86E-08	0.00	1.99E+11	-31.6925	468864.	0.00
30.0000	3.21E-04	-37361.	1528.	-1.08E-06	0.00	1.99E+11	-31.8209	475200.	0.00
30.4000	3.14E-04	-30391.	1376.	-1.90E-06	0.00	1.99E+11	-31.5084	481536.	0.00
30.8000	3.03E-04	-24147.	1227.	-2.55E-06	0.00	1.99E+11	-30.8195	487872.	0.00
31.2000	2.90E-04	-18614.	1081.	-3.07E-06	0.00	1.99E+11	-29.8147	494208.	0.00
31.6000	2.74E-04	-13767.	941.2400	-3.46E-06	0.00	1.99E+11	-28.5497	500544.	0.00
32.0000	2.56E-04	-9578.	807.7409	-3.74E-06	0.00	1.99E+11	-27.0749	506880.	0.00

32.4000	2.38E-04	-6012.	681.7147	-3.93E-06	0.00	1.99E+11	-25.4360	513216.	0.00
32.8000	2.19E-04	-3033.	563.8530	-4.03E-06	0.00	1.99E+11	-23.6730	519552.	0.00
33.2000	1.99E-04	-599.4866	454.6673	-4.08E-06	0.00	1.99E+11	-21.8210	525888.	0.00
33.6000	1.80E-04	1332.	354.5135	-4.07E-06	0.00	1.99E+11	-19.9097	532224.	0.00
34.0000	1.60E-04	2804.	263.6167	-4.02E-06	0.00	1.99E+11	-17.9639	538560.	0.00
34.4000	1.41E-04	3862.	182.0947	-3.94E-06	0.00	1.99E+11	-16.0036	544896.	0.00
34.8000	1.22E-04	4552.	109.9807	-3.84E-06	0.00	1.99E+11	-14.0439	551232.	0.00
35.2000	1.04E-04	4918.	47.2446	-3.72E-06	0.00	1.99E+11	-12.0961	557568.	0.00
35.6000	8.65E-05	5006.	-6.1868	-3.60E-06	0.00	1.99E+11	-10.1670	563904.	0.00
36.0000	6.95E-05	4859.	-50.4122	-3.49E-06	0.00	1.99E+11	-8.2602	570240.	0.00
36.4000	5.31E-05	4522.	-85.5391	-3.37E-06	0.00	1.99E+11	-6.3760	576576.	0.00
36.8000	3.72E-05	4038.	-111.6696	-3.27E-06	0.00	1.99E+11	-4.5117	582912.	0.00
37.2000	2.17E-05	3450.	-128.8881	-3.18E-06	0.00	1.99E+11	-2.6627	589248.	0.00
37.6000	6.63E-06	2800.	-137.2520	-3.10E-06	0.00	1.99E+11	-0.8223	595584.	0.00
38.0000	-8.11E-06	2132.	-136.7839	-3.05E-06	0.00	1.99E+11	1.0173	601920.	0.00
38.4000	-2.26E-05	1487.	-127.4672	-3.00E-06	0.00	1.99E+11	2.8646	608256.	0.00
38.8000	-3.69E-05	908.2102	-109.2445	-2.97E-06	0.00	1.99E+11	4.7282	614592.	0.00
39.2000	-5.11E-05	438.3054	-82.0185	-2.96E-06	0.00	1.99E+11	6.6160	620928.	0.00
39.6000	-6.53E-05	120.8329	-45.6568	-2.95E-06	0.00	1.99E+11	8.5347	627264.	0.00
40.0000	-7.95E-05	0.00	0.00	-2.95E-06	0.00	1.99E+11	10.4890	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 11:

```
Pile-head deflection              =     0.75000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -5045793. inch-lbs
Maximum shear force               =        116381. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             28
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 12

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.000000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	-5045614.	124116.	0.00	0.00	4.36E+09	-12.5000	30.0000	0.00
0.4000	0.9867	-4450885.	123688.	-0.00523	0.00	4.36E+09	-89.1954	433.9218	0.00
0.8000	0.9498	-3858211.	123055.	-0.00797	0.00	3.11E+10	-174.6025	882.3647	0.00
1.2000	0.9101	-3269559.	122000.	-0.00851	0.00	3.29E+10	-264.9497	1397.	0.00
1.6000	0.8681	-2687012.	120503.	-0.00894	0.00	3.30E+10	-358.6001	1983.	0.00
2.0000	0.8243	-2112727.	118550.	-0.00929	0.00	3.32E+10	-455.3509	2652.	0.00
2.4000	0.7789	-1548933.	116123.	-0.00956	0.00	3.33E+10	-555.6385	3424.	0.00
2.8000	0.7325	-997942.	113203.	-0.00968	0.00	1.98E+11	-661.2032	4333.	0.00
3.2000	0.6860	-462184.	109760.	-0.00970	0.00	1.99E+11	-773.4935	5412.	0.00
3.6000	0.6394	55752.	105756.	-0.00970	0.00	1.99E+11	-894.6241	6716.	0.00
4.0000	0.5928	553077.	101140.	-0.00970	0.00	1.99E+11	-1029.	8329.	0.00
4.4000	0.5463	1026699.	95853.	-0.00968	0.00	1.98E+11	-1174.	10318.	0.00
4.8000	0.5000	1473265.	89847.	-0.00965	0.00	1.97E+11	-1328.	12752.	0.00
5.2000	0.4537	1889229.	83145.	-0.00949	0.00	3.32E+10	-1464.	15492.	0.00
5.6000	0.4088	2271454.	75801.	-0.00919	0.00	3.32E+10	-1595.	18731.	0.00
6.0000	0.3655	2616920.	67854.	-0.00884	0.00	3.31E+10	-1716.	22533.	0.00
6.4000	0.3240	2922852.	59359.	-0.00843	0.00	3.30E+10	-1823.	27014.	0.00
6.8000	0.2845	3186771.	50376.	-0.00799	0.00	3.29E+10	-1920.	32381.	0.00
7.2000	0.2473	3406462.	40981.	-0.00751	0.00	3.28E+10	-1995.	38722.	0.00
7.6000	0.2125	3580185.	31269.	-0.00699	0.00	3.27E+10	-2052.	46344.	0.00
8.0000	0.1802	3706641.	21297.	-0.00646	0.00	3.22E+10	-2103.	56038.	0.00
8.4000	0.1505	3784634.	11130.	-0.00589	0.00	3.17E+10	-2133.	68011.	0.00
8.8000	0.1236	3813492.	886.6063	-0.00532	0.00	3.15E+10	-2136.	82941.	0.00
9.2000	0.09948	3793145.	-9302.	-0.00474	0.00	3.16E+10	-2110.	101792.	0.00
9.6000	0.07812	3724192.	-19288.	-0.00417	0.00	3.21E+10	-2051.	126023.	0.00
10.0000	0.05944	3607982.	-28906.	-0.00363	0.00	3.26E+10	-1956.	158001.	0.00
10.4000	0.04330	3446696.	-37168.	-0.00311	0.00	3.28E+10	-1486.	164736.	0.00
10.8000	0.02959	3251168.	-43266.	-0.00262	0.00	3.29E+10	-1054.	171072.	0.00
11.2000	0.01815	3031345.	-47406.	-0.00216	0.00	3.29E+10	-670.8381	177408.	0.00
11.6000	0.00883	2796066.	-49828.	-0.00174	0.00	3.30E+10	-338.1298	183744.	0.00
12.0000	0.00147	2552997.	-50779.	-0.00135	0.00	3.31E+10	-58.1026	190080.	0.00
12.4000	-0.00412	2308589.	-50514.	-9.97E-04	0.00	3.31E+10	168.6008	196416.	0.00
12.8000	-0.00810	2068065.	-49288.	-6.80E-04	0.00	3.32E+10	342.2608	202752.	0.00
13.2000	-0.01065	1835427.	-47353.	-3.98E-04	0.00	3.33E+10	463.9224	209088.	0.00
13.6000	-0.01193	1613478.	-44955.	-1.50E-04	0.00	3.33E+10	535.2491	215424.	0.00
14.0000	-0.01209	1403861.	-42330.	-1.63E-05	0.00	1.97E+11	558.3948	221760.	0.00
14.4000	-0.01208	1207109.	-39612.	1.56E-05	0.00	1.97E+11	574.1512	228096.	0.00
14.8000	-0.01194	1023586.	-36835.	4.27E-05	0.00	1.98E+11	583.0089	234432.	0.00
15.2000	-0.01167	853495.	-34030.	6.55E-05	0.00	1.98E+11	585.4976	240768.	0.00
15.6000	-0.01131	696894.	-31228.	8.42E-05	0.00	1.98E+11	582.1752	247104.	0.00
16.0000	-0.01086	553707.	-28454.	9.94E-05	0.00	1.99E+11	573.6184	253440.	0.00
16.4000	-0.01035	423736.	-25732.	1.11E-04	0.00	1.99E+11	560.4123	259776.	0.00
16.8000	-0.00980	306676.	-23084.	1.20E-04	0.00	1.99E+11	543.1418	266112.	0.00
17.2000	-0.00920	202131.	-20527.	1.26E-04	0.00	1.99E+11	522.3848	272448.	0.00
17.6000	-0.00859	109621.	-18076.	1.30E-04	0.00	1.99E+11	498.7045	278784.	0.00
18.0000	-0.00796	28601.	-15745.	1.32E-04	0.00	1.99E+11	472.6433	285120.	0.00
18.4000	-0.00732	-41528.	-13543.	1.31E-04	0.00	1.99E+11	444.7194	291456.	0.00
18.8000	-0.00670	-101412.	-11479.	1.30E-04	0.00	1.99E+11	415.4224	297792.	0.00

19.2000	-0.00608	-151724.	-9557.	1.27E-04	0.00	1.99E+11	385.2097	304128.	0.00
19.6000	-0.00548	-193161.	-7782.	1.22E-04	0.00	1.99E+11	354.5038	310464.	0.00
20.0000	-0.00490	-226430.	-6154.	1.17E-04	0.00	1.99E+11	323.6899	316800.	0.00
20.4000	-0.00435	-252242.	-4674.	1.12E-04	0.00	1.99E+11	293.1152	323136.	0.00
20.8000	-0.00383	-271300.	-3339.	1.05E-04	0.00	1.99E+11	263.0882	329472.	0.00
21.2000	-0.00334	-284296.	-2146.	9.86E-05	0.00	1.99E+11	233.8792	335808.	0.00
21.6000	-0.00289	-291904.	-1091.	9.17E-05	0.00	1.99E+11	205.7201	342144.	0.00
22.0000	-0.00246	-294772.	-168.3820	8.46E-05	0.00	1.99E+11	178.8050	348480.	0.00
22.4000	-0.00207	-293520.	628.6521	7.75E-05	0.00	1.99E+11	153.2925	354816.	0.00
22.8000	-0.00172	-288737.	1307.	7.05E-05	0.00	1.99E+11	129.3064	361152.	0.00
23.2000	-0.00140	-280974.	1874.	6.37E-05	0.00	1.99E+11	106.9388	367488.	0.00
23.6000	-0.00111	-270748.	2338.	5.70E-05	0.00	1.99E+11	86.2514	373824.	0.00
24.0000	-8.49E-04	-258534.	2706.	5.06E-05	0.00	1.99E+11	67.2789	380160.	0.00
24.4000	-6.21E-04	-244770.	2988.	4.46E-05	0.00	1.99E+11	50.0309	386496.	0.00
24.8000	-4.21E-04	-229853.	3190.	3.89E-05	0.00	1.99E+11	34.4951	392832.	0.00
25.2000	-2.48E-04	-214142.	3323.	3.35E-05	0.00	1.99E+11	20.6401	399168.	0.00
25.6000	-9.96E-05	-197955.	3392.	2.86E-05	0.00	1.99E+11	8.4178	405504.	0.00
26.0000	2.60E-05	-181574.	3407.	2.40E-05	0.00	1.99E+11	-2.2344	411840.	0.00
26.4000	1.31E-04	-165245.	3375.	1.98E-05	0.00	1.99E+11	-11.3906	418176.	0.00
26.8000	2.16E-04	-149178.	3301.	1.60E-05	0.00	1.99E+11	-19.1349	424512.	0.00
27.2000	2.85E-04	-133552.	3194.	1.26E-05	0.00	1.99E+11	-25.5580	430848.	0.00
27.6000	3.38E-04	-118515.	3059.	9.60E-06	0.00	1.99E+11	-30.7563	437184.	0.00
28.0000	3.77E-04	-104186.	2902.	6.92E-06	0.00	1.99E+11	-34.8291	443520.	0.00
28.4000	4.04E-04	-90660.	2727.	4.58E-06	0.00	1.99E+11	-37.8774	449856.	0.00
28.8000	4.21E-04	-78007.	2540.	2.55E-06	0.00	1.99E+11	-40.0020	456192.	0.00
29.2000	4.29E-04	-66275.	2345.	8.13E-07	0.00	1.99E+11	-41.3024	462528.	0.00
29.6000	4.29E-04	-55495.	2145.	-6.53E-07	0.00	1.99E+11	-41.8752	468864.	0.00
30.0000	4.22E-04	-45679.	1945.	-1.87E-06	0.00	1.99E+11	-41.8135	475200.	0.00
30.4000	4.11E-04	-36827.	1745.	-2.86E-06	0.00	1.99E+11	-41.2056	481536.	0.00
30.8000	3.95E-04	-28925.	1550.	-3.65E-06	0.00	1.99E+11	-40.1345	487872.	0.00
31.2000	3.76E-04	-21947.	1361.	-4.27E-06	0.00	1.99E+11	-38.6774	494208.	0.00
31.6000	3.54E-04	-15860.	1180.	-4.72E-06	0.00	1.99E+11	-36.9052	500544.	0.00
32.0000	3.30E-04	-10623.	1007.	-5.04E-06	0.00	1.99E+11	-34.8821	506880.	0.00
32.4000	3.06E-04	-6191.	845.1043	-5.24E-06	0.00	1.99E+11	-32.6655	513216.	0.00
32.8000	2.80E-04	-2510.	693.9729	-5.35E-06	0.00	1.99E+11	-30.3059	519552.	0.00
33.2000	2.54E-04	471.5506	554.4054	-5.37E-06	0.00	1.99E+11	-27.8472	525888.	0.00
33.6000	2.28E-04	2812.	426.7886	-5.33E-06	0.00	1.99E+11	-25.3264	532224.	0.00
34.0000	2.03E-04	4569.	311.3475	-5.24E-06	0.00	1.99E+11	-22.7740	538560.	0.00
34.4000	1.78E-04	5801.	208.1751	-5.12E-06	0.00	1.99E+11	-20.2145	544896.	0.00
34.8000	1.54E-04	6567.	117.2619	-4.97E-06	0.00	1.99E+11	-17.6661	551232.	0.00
35.2000	1.30E-04	6927.	38.5229	-4.81E-06	0.00	1.99E+11	-15.1418	557568.	0.00
35.6000	1.08E-04	6937.	-28.1767	-4.64E-06	0.00	1.99E+11	-12.6496	563904.	0.00
36.0000	8.58E-05	6656.	-82.9985	-4.48E-06	0.00	1.99E+11	-10.1928	570240.	0.00
36.4000	6.47E-05	6140.	-126.1105	-4.32E-06	0.00	1.99E+11	-7.7706	576576.	0.00
36.8000	4.43E-05	5445.	-157.6688	-4.18E-06	0.00	1.99E+11	-5.3787	582912.	0.00
37.2000	2.45E-05	4627.	-177.8026	-4.06E-06	0.00	1.99E+11	-3.0103	589248.	0.00
37.6000	5.29E-06	3738.	-186.6019	-3.96E-06	0.00	1.99E+11	-0.6560	595584.	0.00
38.0000	-1.35E-05	2835.	-184.1087	-3.88E-06	0.00	1.99E+11	1.6949	601920.	0.00
38.4000	-3.20E-05	1971.	-170.3116	-3.83E-06	0.00	1.99E+11	4.0539	608256.	0.00
38.8000	-5.02E-05	1200.	-145.1442	-3.79E-06	0.00	1.99E+11	6.4325	614592.	0.00
39.2000	-6.83E-05	577.6580	-108.4867	-3.77E-06	0.00	1.99E+11	8.8414	620928.	0.00
39.6000	-8.64E-05	158.7752	-60.1727	-3.76E-06	0.00	1.99E+11	11.2894	627264.	0.00

40.0000	-1.04E-04	0.00	0.00	-3.75E-06	0.00	1.99E+11	13.7826	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 12:

```
Pile-head deflection              =     1.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -5045614. inch-lbs
Maximum shear force               =        124116. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             36
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 13

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.250000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	-5045615.	128956.	0.00	0.00	3.24E+09	0.00	0.00	0.00
0.4000	1.2321	-4427558.	128568.	-0.00701	0.00	3.24E+09	-80.7936	314.7589	0.00
0.8000	1.1827	-3811362.	127964.	-0.01057	0.00	3.15E+10	-170.8707	693.4664	0.00
1.2000	1.1306	-3199102.	126910.	-0.01110	0.00	3.29E+10	-268.1757	1139.	0.00
1.6000	1.0762	-2593022.	125384.	-0.01152	0.00	3.31E+10	-367.6571	1640.	0.00
2.0000	1.0200	-1995412.	123380.	-0.01185	0.00	3.32E+10	-467.3130	2199.	0.00
2.4000	0.9624	-1408570.	120897.	-0.01201	0.00	1.97E+11	-567.4598	2830.	0.00
2.8000	0.9047	-834801.	117926.	-0.01204	0.00	1.98E+11	-670.2535	3556.	0.00
3.2000	0.8468	-276475.	114453.	-0.01205	0.00	1.99E+11	-776.9762	4404.	0.00
3.6000	0.7889	263949.	110453.	-0.01205	0.00	1.99E+11	-889.7932	5414.	0.00
4.0000	0.7311	783872.	105882.	-0.01204	0.00	1.98E+11	-1015.	6663.	0.00
4.4000	0.6734	1280412.	100682.	-0.01202	0.00	1.97E+11	-1152.	8210.	0.00
4.8000	0.6157	1750417.	94805.	-0.01187	0.00	3.33E+10	-1297.	10110.	0.00
5.2000	0.5594	2190541.	88188.	-0.01159	0.00	3.32E+10	-1460.	12530.	0.00
5.6000	0.5045	2597022.	80737.	-0.01124	0.00	3.31E+10	-1644.	15646.	0.00

6.0000	0.4514	2965616.	72506.	-0.01084	0.00	3.30E+10	-1785.	18982.	0.00
6.4000	0.4004	3293078.	63641.	-0.01038	0.00	3.29E+10	-1909.	22878.	0.00
6.8000	0.3518	3576567.	54216.	-0.00988	0.00	3.27E+10	-2018.	27542.	0.00
7.2000	0.3056	3813553.	44314.	-0.00933	0.00	3.15E+10	-2108.	33102.	0.00
7.6000	0.2622	4001981.	34035.	-0.00871	0.00	3.00E+10	-2175.	39818.	0.00
8.0000	0.2220	4140289.	23453.	-0.00804	0.00	2.81E+10	-2234.	48307.	0.00
8.4000	0.1851	4227131.	12649.	-0.00731	0.00	2.69E+10	-2268.	58830.	0.00
8.8000	0.1518	4261715.	1743.	-0.00654	0.00	2.65E+10	-2276.	71958.	0.00
9.2000	0.1222	4243867.	-9126.	-0.00578	0.00	2.67E+10	-2253.	88477.	0.00
9.6000	0.09635	4174104.	-19811.	-0.00503	0.00	2.76E+10	-2199.	109522.	0.00
10.0000	0.07395	4053686.	-30147.	-0.00434	0.00	2.93E+10	-2108.	136855.	0.00
10.4000	0.05473	3884691.	-39715.	-0.00370	0.00	3.09E+10	-1878.	164736.	0.00
10.8000	0.03841	3672420.	-47508.	-0.00313	0.00	3.24E+10	-1369.	171072.	0.00
11.2000	0.02470	3428614.	-52984.	-0.00261	0.00	3.28E+10	-912.8076	177408.	0.00
11.6000	0.01340	3163776.	-56405.	-0.00212	0.00	3.29E+10	-512.7629	183744.	0.00
12.0000	0.00431	2887124.	-58045.	-0.00168	0.00	3.30E+10	-170.5896	190080.	0.00
12.4000	-0.00276	2606541.	-58183.	-0.00128	0.00	3.31E+10	113.0570	196416.	0.00
12.8000	-0.00802	2328564.	-57099.	-9.26E-04	0.00	3.31E+10	338.6452	202752.	0.00
13.2000	-0.01165	2058389.	-55068.	-6.09E-04	0.00	3.32E+10	507.5760	209088.	0.00
13.6000	-0.01386	1799908.	-52357.	-3.30E-04	0.00	3.33E+10	622.0032	215424.	0.00
14.0000	-0.01482	1555758.	-49221.	-8.81E-05	0.00	3.33E+10	684.6706	221760.	0.00
14.4000	-0.01470	1327384.	-45901.	4.01E-05	0.00	1.97E+11	698.7697	228096.	0.00
14.8000	-0.01443	1115108.	-42532.	6.99E-05	0.00	1.97E+11	704.9800	234432.	0.00
15.2000	-0.01403	919076.	-39151.	9.46E-05	0.00	1.98E+11	703.9486	240768.	0.00
15.6000	-0.01353	739263.	-35790.	1.15E-04	0.00	1.98E+11	696.3503	247104.	0.00
16.0000	-0.01293	575493.	-32480.	1.31E-04	0.00	1.99E+11	682.8772	253440.	0.00
16.4000	-0.01227	427457.	-29247.	1.43E-04	0.00	1.99E+11	664.2247	259776.	0.00
16.8000	-0.01156	294725.	-26114.	1.51E-04	0.00	1.99E+11	641.0851	266112.	0.00
17.2000	-0.01082	176763.	-23101.	1.57E-04	0.00	1.99E+11	614.1377	272448.	0.00
17.6000	-0.01006	72951.	-20226.	1.60E-04	0.00	1.99E+11	584.0408	278784.	0.00
18.0000	-0.00928	-17405.	-17501.	1.61E-04	0.00	1.99E+11	551.4259	285120.	0.00
18.4000	-0.00851	-95055.	-14937.	1.59E-04	0.00	1.99E+11	516.8937	291456.	0.00
18.8000	-0.00775	-160797.	-12542.	1.56E-04	0.00	1.99E+11	481.0087	297792.	0.00
19.2000	-0.00701	-215456.	-10321.	1.52E-04	0.00	1.99E+11	444.2956	304128.	0.00
19.6000	-0.00630	-259879.	-8277.	1.46E-04	0.00	1.99E+11	407.2365	310464.	0.00
20.0000	-0.00561	-294919.	-6411.	1.39E-04	0.00	1.99E+11	370.2691	316800.	0.00
20.4000	-0.00496	-321428.	-4722.	1.32E-04	0.00	1.99E+11	333.7865	323136.	0.00
20.8000	-0.00434	-340246.	-3205.	1.24E-04	0.00	1.99E+11	298.1351	329472.	0.00
21.2000	-0.00377	-352195.	-1857.	1.16E-04	0.00	1.99E+11	263.6151	335808.	0.00
21.6000	-0.00323	-358071.	-670.9463	1.07E-04	0.00	1.99E+11	230.4815	342144.	0.00
22.0000	-0.00274	-358636.	359.6780	9.84E-05	0.00	1.99E+11	198.9452	348480.	0.00
22.4000	-0.00229	-354618.	1243.	8.98E-05	0.00	1.99E+11	169.1752	354816.	0.00
22.8000	-0.00188	-346702.	1988.	8.14E-05	0.00	1.99E+11	141.3007	361152.	0.00
23.2000	-0.00151	-335530.	2604.	7.31E-05	0.00	1.99E+11	115.4139	367488.	0.00
23.6000	-0.00118	-321700.	3101.	6.52E-05	0.00	1.99E+11	91.5724	373824.	0.00
24.0000	-8.81E-04	-305759.	3488.	5.77E-05	0.00	1.99E+11	69.8028	380160.	0.00
24.4000	-6.22E-04	-288210.	3776.	5.05E-05	0.00	1.99E+11	50.1033	386496.	0.00
24.8000	-3.96E-04	-269507.	3974.	4.38E-05	0.00	1.99E+11	32.4470	392832.	0.00
25.2000	-2.02E-04	-250056.	4093.	3.75E-05	0.00	1.99E+11	16.7853	399168.	0.00
25.6000	-3.61E-05	-230218.	4140.	3.18E-05	0.00	1.99E+11	3.0505	405504.	0.00
26.0000	1.03E-04	-210310.	4126.	2.65E-05	0.00	1.99E+11	-8.8396	411840.	0.00
26.4000	2.18E-04	-190606.	4059.	2.16E-05	0.00	1.99E+11	-18.9802	418176.	0.00

26.8000	3.11E-04	-171339.	3948.	1.73E-05	0.00	1.99E+11	-27.4762	424512.	0.00
27.2000	3.84E-04	-152705.	3799.	1.34E-05	0.00	1.99E+11	-34.4404	430848.	0.00
27.6000	4.39E-04	-134865.	3621.	9.91E-06	0.00	1.99E+11	-39.9904	437184.	0.00
28.0000	4.79E-04	-117946.	3419.	6.87E-06	0.00	1.99E+11	-44.2469	443520.	0.00
28.4000	5.05E-04	-102047.	3199.	4.22E-06	0.00	1.99E+11	-47.3312	449856.	0.00
28.8000	5.19E-04	-87238.	2967.	1.94E-06	0.00	1.99E+11	-49.3641	456192.	0.00
29.2000	5.24E-04	-73566.	2727.	9.62E-09	0.00	1.99E+11	-50.4636	462528.	0.00
29.6000	5.19E-04	-61057.	2484.	-1.61E-06	0.00	1.99E+11	-50.7443	468864.	0.00
30.0000	5.08E-04	-49717.	2242.	-2.94E-06	0.00	1.99E+11	-50.3155	475200.	0.00
30.4000	4.91E-04	-39537.	2003.	-4.02E-06	0.00	1.99E+11	-49.2807	481536.	0.00
30.8000	4.70E-04	-30492.	1770.	-4.86E-06	0.00	1.99E+11	-47.7367	487872.	0.00
31.2000	4.45E-04	-22546.	1545.	-5.50E-06	0.00	1.99E+11	-45.7731	494208.	0.00
31.6000	4.17E-04	-15656.	1331.	-5.96E-06	0.00	1.99E+11	-43.4716	500544.	0.00
32.0000	3.87E-04	-9767.	1129.	-6.26E-06	0.00	1.99E+11	-40.9059	506880.	0.00
32.4000	3.57E-04	-4820.	939.0016	-6.44E-06	0.00	1.99E+11	-38.1417	513216.	0.00
32.8000	3.26E-04	-752.1361	762.8943	-6.51E-06	0.00	1.99E+11	-35.2363	519552.	0.00
33.2000	2.94E-04	2504.	600.9531	-6.49E-06	0.00	1.99E+11	-32.2391	525888.	0.00
33.6000	2.63E-04	5017.	453.5199	-6.40E-06	0.00	1.99E+11	-29.1914	532224.	0.00
34.0000	2.33E-04	6858.	320.7561	-6.25E-06	0.00	1.99E+11	-26.1269	538560.	0.00
34.4000	2.03E-04	8096.	202.6787	-6.07E-06	0.00	1.99E+11	-23.0720	544896.	0.00
34.8000	1.75E-04	8803.	99.1945	-5.87E-06	0.00	1.99E+11	-20.0464	551232.	0.00
35.2000	1.47E-04	9049.	10.1313	-5.65E-06	0.00	1.99E+11	-17.0632	557568.	0.00
35.6000	1.20E-04	8901.	-64.7320	-5.44E-06	0.00	1.99E+11	-14.1298	563904.	0.00
36.0000	9.47E-05	8427.	-125.6396	-5.23E-06	0.00	1.99E+11	-11.2483	570240.	0.00
36.4000	7.01E-05	7694.	-172.8344	-5.04E-06	0.00	1.99E+11	-8.4162	576576.	0.00
36.8000	4.63E-05	6768.	-206.5382	-4.86E-06	0.00	1.99E+11	-5.6271	582912.	0.00
37.2000	2.34E-05	5712.	-226.9341	-4.71E-06	0.00	1.99E+11	-2.8712	589248.	0.00
37.6000	1.10E-06	4589.	-234.1533	-4.59E-06	0.00	1.99E+11	-0.1368	595584.	0.00
38.0000	-2.07E-05	3464.	-228.2653	-4.49E-06	0.00	1.99E+11	2.5901	601920.	0.00
38.4000	-4.20E-05	2398.	-209.2723	-4.42E-06	0.00	1.99E+11	5.3237	608256.	0.00
38.8000	-6.31E-05	1455.	-177.1080	-4.37E-06	0.00	1.99E+11	8.0781	614592.	0.00
39.2000	-8.40E-05	697.7496	-131.6408	-4.35E-06	0.00	1.99E+11	10.8665	620928.	0.00
39.6000	-1.05E-04	191.0557	-72.6822	-4.34E-06	0.00	1.99E+11	13.6996	627264.	0.00
40.0000	-1.26E-04	0.00	0.00	-4.34E-06	0.00	1.99E+11	16.5847	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 13:

```
Pile-head deflection             =     1.25000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -5045615. inch-lbs
Maximum shear force              =        128956. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             55
```

Number of zero deflection points = 3

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 14

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.500000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	-5045560.	132009.	0.00	0.00	2.62E+09	0.00	0.00	0.00
0.4000	1.4779	-4412848.	131621.	-0.00865	0.00	2.62E+09	-80.7936	262.4141	0.00
0.8000	1.4170	-3781997.	131017.	-0.01297	0.00	3.17E+10	-170.8707	578.8288	0.00
1.2000	1.3533	-3155083.	129963.	-0.01349	0.00	3.29E+10	-268.1759	951.1686	0.00
1.6000	1.2875	-2534347.	128432.	-0.01390	0.00	3.31E+10	-369.7823	1379.	0.00
2.0000	1.2199	-1922132.	126408.	-0.01422	0.00	3.32E+10	-473.7309	1864.	0.00
2.4000	1.1509	-1320831.	123884.	-0.01438	0.00	1.97E+11	-577.9348	2410.	0.00
2.8000	1.0818	-732846.	120866.	-0.01440	0.00	1.98E+11	-679.5680	3015.	0.00
3.2000	1.0127	-160518.	117362.	-0.01441	0.00	1.99E+11	-780.5668	3700.	0.00
3.6000	0.9435	393826.	113365.	-0.01441	0.00	1.99E+11	-884.8000	4502.	0.00
4.0000	0.8743	927784.	108840.	-0.01440	0.00	1.98E+11	-1001.	5493.	0.00
4.4000	0.8053	1438687.	103731.	-0.01437	0.00	1.97E+11	-1128.	6725.	0.00
4.8000	0.7364	1923599.	97989.	-0.01421	0.00	3.32E+10	-1264.	8242.	0.00
5.2000	0.6688	2379378.	91550.	-0.01390	0.00	3.31E+10	-1418.	10178.	0.00
5.6000	0.6030	2802482.	84322.	-0.01352	0.00	3.30E+10	-1593.	12685.	0.00
6.0000	0.5390	3188874.	76195.	-0.01309	0.00	3.29E+10	-1793.	15968.	0.00
6.4000	0.4773	3533952.	67134.	-0.01260	0.00	3.28E+10	-1982.	19932.	0.00
6.8000	0.4181	3833362.	57331.	-0.01204	0.00	3.13E+10	-2103.	24138.	0.00
7.2000	0.3617	4084329.	47001.	-0.01141	0.00	2.89E+10	-2202.	29214.	0.00
7.6000	0.3086	4284572.	36254.	-0.01068	0.00	2.62E+10	-2276.	35406.	0.00
8.0000	0.2592	4432371.	25185.	-0.00983	0.00	2.35E+10	-2336.	43253.	0.00
8.4000	0.2142	4526351.	13893.	-0.00887	0.00	2.16E+10	-2369.	53089.	0.00
8.8000	0.1740	4565742.	2510.	-0.00785	0.00	2.09E+10	-2374.	65469.	0.00
9.2000	0.1389	4550444.	-8820.	-0.00681	0.00	2.12E+10	-2347.	81123.	0.00
9.6000	0.1086	4481073.	-19942.	-0.00582	0.00	2.25E+10	-2287.	101063.	0.00
10.0000	0.08301	4358998.	-30696.	-0.00492	0.00	2.50E+10	-2193.	126825.	0.00
10.4000	0.06140	4186388.	-41018.	-0.00414	0.00	2.74E+10	-2107.	164736.	0.00
10.8000	0.04330	3965227.	-49779.	-0.00346	0.00	3.03E+10	-1543.	171072.	0.00
11.2000	0.02822	3708511.	-55986.	-0.00287	0.00	3.22E+10	-1043.	177408.	0.00
11.6000	0.01579	3427763.	-59940.	-0.00234	0.00	3.28E+10	-604.5757	183744.	0.00
12.0000	0.00577	3133087.	-61940.	-0.00186	0.00	3.29E+10	-228.5867	190080.	0.00
12.4000	-0.00206	2833144.	-62286.	-0.00142	0.00	3.30E+10	84.1276	196416.	0.00
12.8000	-0.00791	2535139.	-61283.	-0.00103	0.00	3.31E+10	333.9598	202752.	0.00
13.2000	-0.01199	2244828.	-59228.	-6.88E-04	0.00	3.32E+10	522.3258	209088.	0.00

13.6000	-0.01452	1966552.	-56411.	-3.84E-04	0.00	3.32E+10	651.4683	215424.	0.00
14.0000	-0.01568	1703286.	-53109.	-1.19E-04	0.00	3.33E+10	724.2794	221760.	0.00
14.4000	-0.01566	1456707.	-49585.	2.88E-05	0.00	1.39E+11	744.1452	228096.	0.00
14.8000	-0.01540	1227273.	-45993.	6.89E-05	0.00	1.97E+11	752.1730	234432.	0.00
15.2000	-0.01500	1015169.	-42383.	9.61E-05	0.00	1.98E+11	752.3241	240768.	0.00
15.6000	-0.01448	820399.	-38788.	1.18E-04	0.00	1.98E+11	745.3212	247104.	0.00
16.0000	-0.01386	642801.	-35243.	1.36E-04	0.00	1.98E+11	731.9054	253440.	0.00
16.4000	-0.01317	482066.	-31776.	1.50E-04	0.00	1.99E+11	712.8247	259776.	0.00
16.8000	-0.01242	337755.	-28412.	1.60E-04	0.00	1.99E+11	688.8244	266112.	0.00
17.2000	-0.01164	209314.	-25173.	1.66E-04	0.00	1.99E+11	660.6350	272448.	0.00
17.6000	-0.01083	96094.	-22078.	1.70E-04	0.00	1.99E+11	628.9671	278784.	0.00
18.0000	-0.01001	-2634.	-19142.	1.71E-04	0.00	1.99E+11	594.5020	285120.	0.00
18.4000	-0.00919	-87665.	-16376.	1.70E-04	0.00	1.99E+11	557.8881	291456.	0.00
18.8000	-0.00838	-159843.	-13790.	1.67E-04	0.00	1.99E+11	519.7364	297792.	0.00
19.2000	-0.00759	-220045.	-11389.	1.62E-04	0.00	1.99E+11	480.6153	304128.	0.00
19.6000	-0.00682	-269175.	-9177.	1.56E-04	0.00	1.99E+11	441.0477	310464.	0.00
20.0000	-0.00608	-308142.	-7155.	1.50E-04	0.00	1.99E+11	401.5099	316800.	0.00
20.4000	-0.00538	-337859.	-5321.	1.42E-04	0.00	1.99E+11	362.4299	323136.	0.00
20.8000	-0.00472	-359225.	-3673.	1.33E-04	0.00	1.99E+11	324.1858	329472.	0.00
21.2000	-0.00410	-373123.	-2206.	1.24E-04	0.00	1.99E+11	287.1061	335808.	0.00
21.6000	-0.00353	-380405.	-913.5958	1.15E-04	0.00	1.99E+11	251.4707	342144.	0.00
22.0000	-0.00300	-381893.	211.9622	1.06E-04	0.00	1.99E+11	217.5118	348480.	0.00
22.4000	-0.00251	-378370.	1179.	9.70E-05	0.00	1.99E+11	185.4168	354816.	0.00
22.8000	-0.00206	-370575.	1997.	8.80E-05	0.00	1.99E+11	155.3299	361152.	0.00
23.2000	-0.00166	-359201.	2675.	7.92E-05	0.00	1.99E+11	127.3551	367488.	0.00
23.6000	-0.00130	-344893.	3225.	7.07E-05	0.00	1.99E+11	101.5595	373824.	0.00
24.0000	-9.85E-04	-328244.	3656.	6.26E-05	0.00	1.99E+11	77.9759	380160.	0.00
24.4000	-7.03E-04	-309800.	3979.	5.49E-05	0.00	1.99E+11	56.6067	386496.	0.00
24.8000	-4.57E-04	-290051.	4204.	4.77E-05	0.00	1.99E+11	37.4269	392832.	0.00
25.2000	-2.45E-04	-269440.	4343.	4.10E-05	0.00	1.99E+11	20.3875	399168.	0.00
25.6000	-6.41E-05	-248359.	4405.	3.47E-05	0.00	1.99E+11	5.4190	405504.	0.00
26.0000	8.82E-05	-227153.	4400.	2.90E-05	0.00	1.99E+11	-7.5653	411840.	0.00
26.4000	2.14E-04	-206121.	4337.	2.38E-05	0.00	1.99E+11	-18.6653	418176.	0.00
26.8000	3.17E-04	-185520.	4225.	1.91E-05	0.00	1.99E+11	-27.9920	424512.	0.00
27.2000	3.97E-04	-165563.	4072.	1.48E-05	0.00	1.99E+11	-35.6647	430848.	0.00
27.6000	4.59E-04	-146428.	3886.	1.11E-05	0.00	1.99E+11	-41.8085	437184.	0.00
28.0000	5.04E-04	-128257.	3674.	7.79E-06	0.00	1.99E+11	-46.5519	443520.	0.00
28.4000	5.34E-04	-111158.	3442.	4.90E-06	0.00	1.99E+11	-50.0248	449856.	0.00
28.8000	5.51E-04	-95211.	3197.	2.42E-06	0.00	1.99E+11	-52.3562	456192.	0.00
29.2000	5.57E-04	-80471.	2942.	3.06E-07	0.00	1.99E+11	-53.6727	462528.	0.00
29.6000	5.54E-04	-66968.	2683.	-1.47E-06	0.00	1.99E+11	-54.0973	468864.	0.00
30.0000	5.43E-04	-54711.	2425.	-2.93E-06	0.00	1.99E+11	-53.7474	475200.	0.00
30.4000	5.26E-04	-43692.	2169.	-4.12E-06	0.00	1.99E+11	-52.7346	481536.	0.00
30.8000	5.03E-04	-33888.	1920.	-5.05E-06	0.00	1.99E+11	-51.1631	487872.	0.00
31.2000	4.77E-04	-25263.	1679.	-5.76E-06	0.00	1.99E+11	-49.1298	494208.	0.00
31.6000	4.48E-04	-17770.	1449.	-6.28E-06	0.00	1.99E+11	-46.7228	500544.	0.00
32.0000	4.17E-04	-11353.	1231.	-6.63E-06	0.00	1.99E+11	-44.0222	506880.	0.00
32.4000	3.84E-04	-5951.	1027.	-6.84E-06	0.00	1.99E+11	-41.0990	513216.	0.00
32.8000	3.51E-04	-1496.	836.9598	-6.93E-06	0.00	1.99E+11	-38.0156	519552.	0.00
33.2000	3.18E-04	2084.	662.1404	-6.92E-06	0.00	1.99E+11	-34.8258	525888.	0.00
33.6000	2.85E-04	4861.	502.7797	-6.84E-06	0.00	1.99E+11	-31.5745	532224.	0.00
34.0000	2.52E-04	6910.	359.0835	-6.70E-06	0.00	1.99E+11	-28.2989	538560.	0.00

34.4000	2.20E-04	8308.	231.0988	-6.51E-06	0.00	1.99E+11	-25.0280	544896.	0.00
34.8000	1.90E-04	9129.	118.7511	-6.30E-06	0.00	1.99E+11	-21.7835	551232.	0.00
35.2000	1.60E-04	9448.	21.8778	-6.08E-06	0.00	1.99E+11	-18.5803	557568.	0.00
35.6000	1.31E-04	9339.	-59.7393	-5.85E-06	0.00	1.99E+11	-15.4268	563904.	0.00
36.0000	1.04E-04	8874.	-126.3458	-5.64E-06	0.00	1.99E+11	-12.3259	570240.	0.00
36.4000	7.72E-05	8126.	-178.1890	-5.43E-06	0.00	1.99E+11	-9.2754	576576.	0.00
36.8000	5.16E-05	7164.	-215.4952	-5.25E-06	0.00	1.99E+11	-6.2689	582912.	0.00
37.2000	2.69E-05	6057.	-238.4517	-5.09E-06	0.00	1.99E+11	-3.2963	589248.	0.00
37.6000	2.78E-06	4875.	-247.1916	-4.96E-06	0.00	1.99E+11	-0.3453	595584.	0.00
38.0000	-2.07E-05	3684.	-241.7833	-4.85E-06	0.00	1.99E+11	2.5987	601920.	0.00
38.4000	-4.38E-05	2554.	-222.2244	-4.78E-06	0.00	1.99E+11	5.5508	608256.	0.00
38.8000	-6.66E-05	1551.	-188.4399	-4.73E-06	0.00	1.99E+11	8.5261	614592.	0.00
39.2000	-8.92E-05	744.5369	-140.2854	-4.70E-06	0.00	1.99E+11	11.5383	620928.	0.00
39.6000	-1.12E-04	204.0882	-77.5559	-4.69E-06	0.00	1.99E+11	14.5990	627264.	0.00
40.0000	-1.34E-04	0.00	0.00	-4.69E-06	0.00	1.99E+11	17.7160	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 14:

```
Pile-head deflection             =     1.50000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -5045560. inch-lbs
Maximum shear force              =        132009. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             63
Number of zero deflection points =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 15

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.750000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	-5045599.	133551.	0.00	0.00	2.20E+09	0.00	0.00	0.00

0.4000	1.7235	-4405485.	133163.	-0.01032	0.00	2.20E+09	-80.7936	225.0066	0.00
0.8000	1.6509	-3767232.	132559.	-0.01542	0.00	3.18E+10	-170.8707	496.8086	0.00
1.2000	1.5755	-3132916.	131506.	-0.01593	0.00	3.29E+10	-268.1758	817.0278	0.00
1.6000	1.4980	-2504778.	129974.	-0.01634	0.00	3.31E+10	-369.7821	1185.	0.00
2.0000	1.4186	-1885161.	127950.	-0.01666	0.00	3.32E+10	-473.7306	1603.	0.00
2.4000	1.3380	-1276458.	125426.	-0.01681	0.00	1.97E+11	-577.9345	2073.	0.00
2.8000	1.2573	-681070.	122403.	-0.01683	0.00	1.98E+11	-681.8362	2603.	0.00
3.2000	1.1764	-101392.	118887.	-0.01684	0.00	1.99E+11	-782.9984	3195.	0.00
3.6000	1.0955	460245.	114896.	-0.01684	0.00	1.99E+11	-879.8850	3855.	0.00
4.0000	1.0147	1001610.	110417.	-0.01682	0.00	1.98E+11	-986.6033	4667.	0.00
4.4000	0.9341	1520244.	105396.	-0.01670	0.00	3.33E+10	-1105.	5679.	0.00
4.8000	0.8544	2013415.	99786.	-0.01645	0.00	3.32E+10	-1233.	6924.	0.00
5.2000	0.7762	2478188.	93523.	-0.01612	0.00	3.31E+10	-1377.	8516.	0.00
5.6000	0.6997	2911232.	86514.	-0.01573	0.00	3.30E+10	-1543.	10588.	0.00
6.0000	0.6252	3308718.	78647.	-0.01528	0.00	3.29E+10	-1734.	13316.	0.00
6.4000	0.5530	3666246.	69790.	-0.01476	0.00	3.24E+10	-1956.	16980.	0.00
6.8000	0.4835	3978700.	59872.	-0.01417	0.00	3.02E+10	-2176.	21605.	0.00
7.2000	0.4169	4241018.	49168.	-0.01348	0.00	2.67E+10	-2284.	26295.	0.00
7.6000	0.3541	4450712.	38010.	-0.01263	0.00	2.31E+10	-2365.	32063.	0.00
8.0000	0.2957	4605913.	26511.	-0.01163	0.00	2.03E+10	-2426.	39388.	0.00
8.4000	0.2425	4705216.	14788.	-0.01045	0.00	1.79E+10	-2459.	48669.	0.00
8.8000	0.1953	4747873.	2983.	-0.00914	0.00	1.67E+10	-2460.	60449.	0.00
9.2000	0.1547	4733855.	-8751.	-0.00779	0.00	1.71E+10	-2430.	75371.	0.00
9.6000	0.1205	4663860.	-20264.	-0.00655	0.00	1.91E+10	-2367.	94299.	0.00
10.0000	0.09189	4539321.	-31396.	-0.00545	0.00	2.14E+10	-2271.	118637.	0.00
10.4000	0.06816	4362457.	-42098.	-0.00452	0.00	2.50E+10	-2188.	154079.	0.00
10.8000	0.04846	4135181.	-51494.	-0.00375	0.00	2.81E+10	-1727.	171072.	0.00
11.2000	0.03215	3868111.	-58492.	-0.00310	0.00	3.10E+10	-1188.	177408.	0.00
11.6000	0.01871	3573663.	-63063.	-0.00254	0.00	3.27E+10	-716.2982	183744.	0.00
12.0000	0.00779	3262711.	-65522.	-0.00204	0.00	3.29E+10	-308.6137	190080.	0.00
12.4000	-8.39E-04	2944649.	-66181.	-0.00158	0.00	3.30E+10	34.3509	196416.	0.00
12.8000	-0.00741	2627378.	-65346.	-0.00118	0.00	3.31E+10	313.1889	202752.	0.00
13.2000	-0.01216	2317323.	-63324.	-8.20E-04	0.00	3.31E+10	529.6162	209088.	0.00
13.6000	-0.01529	2019470.	-60406.	-5.07E-04	0.00	3.32E+10	686.2582	215424.	0.00
14.0000	-0.01702	1737429.	-56871.	-2.36E-04	0.00	3.33E+10	786.4519	221760.	0.00
14.4000	-0.01755	1473507.	-52982.	-1.39E-05	0.00	3.67E+10	834.0688	228096.	0.00
14.8000	-0.01716	1228803.	-48969.	9.74E-05	0.00	1.97E+11	837.9111	234432.	0.00
15.2000	-0.01662	1003404.	-44958.	1.25E-04	0.00	1.98E+11	833.5063	240768.	0.00
15.6000	-0.01596	797209.	-40985.	1.46E-04	0.00	1.98E+11	821.6574	247104.	0.00
16.0000	-0.01521	609945.	-37086.	1.63E-04	0.00	1.99E+11	803.1813	253440.	0.00
16.4000	-0.01439	441186.	-33289.	1.76E-04	0.00	1.99E+11	778.8973	259776.	0.00
16.8000	-0.01352	290373.	-29620.	1.85E-04	0.00	1.99E+11	749.6162	266112.	0.00
17.2000	-0.01262	156831.	-26102.	1.90E-04	0.00	1.99E+11	716.1303	272448.	0.00
17.6000	-0.01169	39789.	-22754.	1.93E-04	0.00	1.99E+11	679.2045	278784.	0.00
18.0000	-0.01077	-61604.	-19589.	1.92E-04	0.00	1.99E+11	639.5700	285120.	0.00
18.4000	-0.00985	-148261.	-16619.	1.90E-04	0.00	1.99E+11	597.9202	291456.	0.00
18.8000	-0.00894	-221143.	-13852.	1.85E-04	0.00	1.99E+11	554.9043	297792.	0.00
19.2000	-0.00807	-281239.	-11293.	1.79E-04	0.00	1.99E+11	511.1237	304128.	0.00
19.6000	-0.00722	-329560.	-8946.	1.72E-04	0.00	1.99E+11	467.1301	310464.	0.00
20.0000	-0.00642	-367117.	-6808.	1.64E-04	0.00	1.99E+11	423.4226	316800.	0.00
20.4000	-0.00565	-394919.	-4879.	1.54E-04	0.00	1.99E+11	380.4462	323136.	0.00
20.8000	-0.00493	-413955.	-3153.	1.45E-04	0.00	1.99E+11	338.5908	329472.	0.00

21.2000	-0.00426	-425191.	-1625.	1.35E-04	0.00	1.99E+11	298.1923	335808.	0.00
21.6000	-0.00364	-429556.	-286.4744	1.24E-04	0.00	1.99E+11	259.5334	342144.	0.00
22.0000	-0.00307	-427941.	871.2366	1.14E-04	0.00	1.99E+11	222.8461	348480.	0.00
22.4000	-0.00255	-421192.	1858.	1.04E-04	0.00	1.99E+11	188.3135	354816.	0.00
22.8000	-0.00207	-410104.	2685.	9.36E-05	0.00	1.99E+11	156.0728	361152.	0.00
23.2000	-0.00165	-395420.	3362.	8.39E-05	0.00	1.99E+11	126.2185	367488.	0.00
23.6000	-0.00127	-377828.	3902.	7.46E-05	0.00	1.99E+11	98.8058	373824.	0.00
24.0000	-9.33E-04	-357960.	4316.	6.57E-05	0.00	1.99E+11	73.8541	380160.	0.00
24.4000	-6.38E-04	-336390.	4617.	5.74E-05	0.00	1.99E+11	51.3508	386496.	0.00
24.8000	-3.82E-04	-313637.	4815.	4.95E-05	0.00	1.99E+11	31.2548	392832.	0.00
25.2000	-1.62E-04	-290164.	4923.	4.22E-05	0.00	1.99E+11	13.5003	399168.	0.00
25.6000	2.37E-05	-266379.	4950.	3.55E-05	0.00	1.99E+11	-1.9994	405504.	0.00
26.0000	1.79E-04	-242641.	4909.	2.94E-05	0.00	1.99E+11	-15.3485	411840.	0.00
26.4000	3.06E-04	-219257.	4808.	2.39E-05	0.00	1.99E+11	-26.6650	418176.	0.00
26.8000	4.08E-04	-196487.	4657.	1.89E-05	0.00	1.99E+11	-36.0769	424512.	0.00
27.2000	4.87E-04	-174548.	4466.	1.44E-05	0.00	1.99E+11	-43.7200	430848.	0.00
27.6000	5.46E-04	-153616.	4241.	1.04E-05	0.00	1.99E+11	-49.7353	437184.	0.00
28.0000	5.87E-04	-133830.	3992.	6.98E-06	0.00	1.99E+11	-54.2663	443520.	0.00
28.4000	6.13E-04	-115295.	3724.	3.98E-06	0.00	1.99E+11	-57.4571	449856.	0.00
28.8000	6.26E-04	-98083.	3443.	1.41E-06	0.00	1.99E+11	-59.4498	456192.	0.00
29.2000	6.27E-04	-82241.	3155.	-7.56E-07	0.00	1.99E+11	-60.3835	462528.	0.00
29.6000	6.18E-04	-67791.	2866.	-2.56E-06	0.00	1.99E+11	-60.3920	468864.	0.00
30.0000	6.02E-04	-54731.	2578.	-4.04E-06	0.00	1.99E+11	-59.6029	475200.	0.00
30.4000	5.80E-04	-43045.	2295.	-5.21E-06	0.00	1.99E+11	-58.1367	481536.	0.00
30.8000	5.52E-04	-32699.	2021.	-6.12E-06	0.00	1.99E+11	-56.1054	487872.	0.00
31.2000	5.21E-04	-23645.	1758.	-6.80E-06	0.00	1.99E+11	-53.6126	494208.	0.00
31.6000	4.87E-04	-15826.	1507.	-7.28E-06	0.00	1.99E+11	-50.7522	500544.	0.00
32.0000	4.51E-04	-9177.	1271.	-7.58E-06	0.00	1.99E+11	-47.6090	506880.	0.00
32.4000	4.14E-04	-3625.	1051.	-7.73E-06	0.00	1.99E+11	-44.2578	513216.	0.00
32.8000	3.77E-04	907.9339	846.4748	-7.77E-06	0.00	1.99E+11	-40.7637	519552.	0.00
33.2000	3.39E-04	4501.	659.4034	-7.70E-06	0.00	1.99E+11	-37.1827	525888.	0.00
33.6000	3.03E-04	7238.	489.6187	-7.56E-06	0.00	1.99E+11	-33.5610	532224.	0.00
34.0000	2.67E-04	9202.	337.2254	-7.36E-06	0.00	1.99E+11	-29.9362	538560.	0.00
34.4000	2.32E-04	10476.	202.1685	-7.12E-06	0.00	1.99E+11	-26.3375	544896.	0.00
34.8000	1.98E-04	11143.	84.2724	-6.86E-06	0.00	1.99E+11	-22.7859	551232.	0.00
35.2000	1.66E-04	11285.	-16.7218	-6.59E-06	0.00	1.99E+11	-19.2951	557568.	0.00
35.6000	1.35E-04	10982.	-101.1233	-6.33E-06	0.00	1.99E+11	-15.8722	563904.	0.00
36.0000	1.05E-04	10314.	-169.2601	-6.07E-06	0.00	1.99E+11	-12.5182	570240.	0.00
36.4000	7.68E-05	9357.	-221.4530	-5.83E-06	0.00	1.99E+11	-9.2288	576576.	0.00
36.8000	4.94E-05	8188.	-257.9911	-5.62E-06	0.00	1.99E+11	-5.9954	582912.	0.00
37.2000	2.29E-05	6880.	-279.1136	-5.44E-06	0.00	1.99E+11	-2.8056	589248.	0.00
37.6000	-2.87E-06	5508.	-284.9938	-5.29E-06	0.00	1.99E+11	0.3555	595584.	0.00
38.0000	-2.79E-05	4144.	-275.7290	-5.18E-06	0.00	1.99E+11	3.5048	601920.	0.00
38.4000	-5.26E-05	2861.	-251.3347	-5.09E-06	0.00	1.99E+11	6.6596	608256.	0.00
38.8000	-7.68E-05	1732.	-211.7430	-5.04E-06	0.00	1.99E+11	9.8370	614592.	0.00
39.2000	-1.01E-04	828.6324	-156.8082	-5.01E-06	0.00	1.99E+11	13.0526	620928.	0.00
39.6000	-1.25E-04	226.3188	-86.3159	-4.99E-06	0.00	1.99E+11	16.3192	627264.	0.00
40.0000	-1.49E-04	0.00	0.00	-4.99E-06	0.00	1.99E+11	19.6457	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual

stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 15:

```
Pile-head deflection               =     1.75000000 inches
Computed slope at pile head        =       0.000000 radians
Maximum bending moment             =      -5045599. inch-lbs
Maximum shear force                =        133551. lbs
Depth of maximum bending moment    =       0.000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             74
Number of zero deflection points   =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 16

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     2.000000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	-5045551.	134392.	0.00	0.00	1.90E+09	0.00	0.00	0.00
0.4000	1.9694	-4401399.	134004.	-0.01194	0.00	1.90E+09	-80.7936	196.9175	0.00
0.8000	1.8854	-3759110.	133400.	-0.01778	0.00	3.19E+10	-170.8708	435.0130	0.00
1.2000	1.7987	-3120757.	132347.	-0.01829	0.00	3.29E+10	-268.1760	715.6477	0.00
1.6000	1.7098	-2488583.	130815.	-0.01870	0.00	3.31E+10	-369.7824	1038.	0.00
2.0000	1.6192	-1864928.	128791.	-0.01901	0.00	3.33E+10	-473.7311	1404.	0.00
2.4000	1.5273	-1252189.	126267.	-0.01916	0.00	1.97E+11	-577.9352	1816.	0.00
2.8000	1.4352	-652765.	123244.	-0.01919	0.00	1.98E+11	-681.8371	2280.	0.00
3.2000	1.3431	-69051.	119728.	-0.01920	0.00	1.99E+11	-782.9995	2798.	0.00
3.6000	1.2510	496624.	115739.	-0.01919	0.00	1.99E+11	-878.9347	3372.	0.00
4.0000	1.1589	1042047.	111288.	-0.01917	0.00	1.98E+11	-975.6028	4041.	0.00
4.4000	1.0669	1564993.	106352.	-0.01905	0.00	3.33E+10	-1081.	4865.	0.00
4.8000	0.9760	2063022.	100877.	-0.01878	0.00	3.32E+10	-1200.	5900.	0.00
5.2000	0.8866	2533410.	94794.	-0.01845	0.00	3.31E+10	-1335.	7227.	0.00
5.6000	0.7989	2973043.	88010.	-0.01805	0.00	3.30E+10	-1492.	8964.	0.00
6.0000	0.7133	3378302.	80411.	-0.01759	0.00	3.29E+10	-1674.	11265.	0.00
6.4000	0.6301	3744990.	71858.	-0.01706	0.00	3.20E+10	-1890.	14397.	0.00
6.8000	0.5495	4068135.	62181.	-0.01644	0.00	2.91E+10	-2142.	18710.	0.00
7.2000	0.4722	4341929.	51379.	-0.01570	0.00	2.54E+10	-2359.	23977.	0.00
7.6000	0.3988	4561374.	39850.	-0.01477	0.00	2.10E+10	-2445.	29424.	0.00

8.0000	0.3305	4724490.	27970.	-0.01359	0.00	1.74E+10	-2505.	36388.	0.00
8.4000	0.2683	4829887.	15876.	-0.01216	0.00	1.47E+10	-2534.	45328.	0.00
8.8000	0.2138	4876902.	3724.	-0.01052	0.00	1.37E+10	-2529.	56796.	0.00
9.2000	0.1674	4865642.	-8325.	-0.00883	0.00	1.40E+10	-2491.	71449.	0.00
9.6000	0.1290	4796982.	-20116.	-0.00725	0.00	1.55E+10	-2421.	90088.	0.00
10.0000	0.09781	4672533.	-31495.	-0.00591	0.00	1.89E+10	-2320.	113862.	0.00
10.4000	0.07230	4494626.	-42422.	-0.00483	0.00	2.22E+10	-2233.	148221.	0.00
10.8000	0.05146	4265279.	-52182.	-0.00396	0.00	2.64E+10	-1834.	171072.	0.00
11.2000	0.03433	3993679.	-59629.	-0.00325	0.00	3.00E+10	-1269.	177408.	0.00
11.6000	0.02027	3692843.	-64536.	-0.00265	0.00	3.23E+10	-775.9662	183744.	0.00
12.0000	0.00885	3374129.	-67240.	-0.00213	0.00	3.29E+10	-350.3292	190080.	0.00
12.4000	-2.11E-04	3047343.	-68060.	-0.00167	0.00	3.29E+10	8.6349	196416.	0.00
12.8000	-0.00714	2720756.	-67315.	-0.00125	0.00	3.30E+10	301.4859	202752.	0.00
13.2000	-0.01217	2401116.	-65320.	-8.74E-04	0.00	3.31E+10	529.9564	209088.	0.00
13.6000	-0.01552	2093685.	-62376.	-5.48E-04	0.00	3.32E+10	696.7295	215424.	0.00
14.0000	-0.01743	1802307.	-58771.	-2.67E-04	0.00	3.33E+10	805.2330	221760.	0.00
14.4000	-0.01809	1529482.	-54776.	-2.67E-05	0.00	3.33E+10	859.4541	228096.	0.00
14.8000	-0.01769	1276459.	-50640.	9.89E-05	0.00	1.97E+11	863.7830	234432.	0.00
15.2000	-0.01714	1043337.	-46504.	1.27E-04	0.00	1.98E+11	859.5689	240768.	0.00
15.6000	-0.01647	830020.	-42407.	1.50E-04	0.00	1.98E+11	847.6409	247104.	0.00
16.0000	-0.01570	636232.	-38383.	1.68E-04	0.00	1.98E+11	828.8429	253440.	0.00
16.4000	-0.01486	461541.	-34464.	1.81E-04	0.00	1.99E+11	804.0213	259776.	0.00
16.8000	-0.01396	305375.	-30677.	1.90E-04	0.00	1.99E+11	774.0140	266112.	0.00
17.2000	-0.01303	167041.	-27044.	1.96E-04	0.00	1.99E+11	739.6393	272448.	0.00
17.6000	-0.01208	45749.	-23585.	1.98E-04	0.00	1.99E+11	701.6876	278784.	0.00
18.0000	-0.01113	-59376.	-20315.	1.98E-04	0.00	1.99E+11	660.9151	285120.	0.00
18.4000	-0.01018	-149273.	-17245.	1.96E-04	0.00	1.99E+11	618.0382	291456.	0.00
18.8000	-0.00925	-224931.	-14385.	1.91E-04	0.00	1.99E+11	573.7285	297792.	0.00
19.2000	-0.00834	-287370.	-11740.	1.85E-04	0.00	1.99E+11	528.6081	304128.	0.00
19.6000	-0.00747	-337630.	-9311.	1.78E-04	0.00	1.99E+11	483.2483	310464.	0.00
20.0000	-0.00664	-376757.	-7100.	1.69E-04	0.00	1.99E+11	438.1660	316800.	0.00
20.4000	-0.00585	-405787.	-5103.	1.59E-04	0.00	1.99E+11	393.8219	323136.	0.00
20.8000	-0.00511	-425744.	-3316.	1.49E-04	0.00	1.99E+11	350.6203	329472.	0.00
21.2000	-0.00442	-437623.	-1733.	1.39E-04	0.00	1.99E+11	308.9095	335808.	0.00
21.6000	-0.00377	-442385.	-346.4202	1.28E-04	0.00	1.99E+11	268.9832	342144.	0.00
22.0000	-0.00318	-440949.	853.7367	1.18E-04	0.00	1.99E+11	231.0822	348480.	0.00
22.4000	-0.00264	-434189.	1877.	1.07E-04	0.00	1.99E+11	195.3971	354816.	0.00
22.8000	-0.00215	-422927.	2735.	9.68E-05	0.00	1.99E+11	162.0710	361152.	0.00
23.2000	-0.00171	-407931.	3439.	8.68E-05	0.00	1.99E+11	131.2028	367488.	0.00
23.6000	-0.00132	-389912.	4001.	7.72E-05	0.00	1.99E+11	102.8510	373824.	0.00
24.0000	-9.73E-04	-369523.	4433.	6.80E-05	0.00	1.99E+11	77.0366	380160.	0.00
24.4000	-6.68E-04	-347359.	4746.	5.94E-05	0.00	1.99E+11	53.7476	386496.	0.00
24.8000	-4.03E-04	-323958.	4954.	5.13E-05	0.00	1.99E+11	32.9428	392832.	0.00
25.2000	-1.75E-04	-299797.	5068.	4.38E-05	0.00	1.99E+11	14.5551	399168.	0.00
25.6000	1.78E-05	-275300.	5100.	3.69E-05	0.00	1.99E+11	-1.5041	405504.	0.00
26.0000	1.79E-04	-250839.	5059.	3.05E-05	0.00	1.99E+11	-15.3419	411840.	0.00
26.4000	3.11E-04	-226731.	4958.	2.48E-05	0.00	1.99E+11	-27.0798	418176.	0.00
26.8000	4.17E-04	-203246.	4804.	1.96E-05	0.00	1.99E+11	-36.8495	424512.	0.00
27.2000	4.99E-04	-180611.	4608.	1.50E-05	0.00	1.99E+11	-44.7908	430848.	0.00
27.6000	5.60E-04	-159008.	4378.	1.09E-05	0.00	1.99E+11	-51.0488	437184.	0.00
28.0000	6.04E-04	-138581.	4122.	7.31E-06	0.00	1.99E+11	-55.7716	443520.	0.00
28.4000	6.31E-04	-119439.	3846.	4.21E-06	0.00	1.99E+11	-59.1077	449856.	0.00

28.8000	6.44E-04	-101658.	3557.	1.55E-06	0.00	1.99E+11	-61.2037	456192.	0.00
29.2000	6.46E-04	-85288.	3261.	-7.04E-07	0.00	1.99E+11	-62.2031	462528.	0.00
29.6000	6.37E-04	-70351.	2962.	-2.58E-06	0.00	1.99E+11	-62.2440	468864.	0.00
30.0000	6.21E-04	-56848.	2666.	-4.11E-06	0.00	1.99E+11	-61.4583	475200.	0.00
30.4000	5.98E-04	-44762.	2374.	-5.33E-06	0.00	1.99E+11	-59.9702	481536.	0.00
30.8000	5.70E-04	-34056.	2091.	-6.28E-06	0.00	1.99E+11	-57.8959	487872.	0.00
31.2000	5.38E-04	-24685.	1820.	-6.99E-06	0.00	1.99E+11	-55.3420	494208.	0.00
31.6000	5.03E-04	-16589.	1561.	-7.48E-06	0.00	1.99E+11	-52.4059	500544.	0.00
32.0000	4.66E-04	-9700.	1317.	-7.80E-06	0.00	1.99E+11	-49.1751	506880.	0.00
32.4000	4.28E-04	-3945.	1089.	-7.96E-06	0.00	1.99E+11	-45.7272	513216.	0.00
32.8000	3.89E-04	757.5644	878.5078	-8.00E-06	0.00	1.99E+11	-42.1296	519552.	0.00
33.2000	3.51E-04	4489.	685.1405	-7.94E-06	0.00	1.99E+11	-38.4401	525888.	0.00
33.6000	3.13E-04	7335.	509.5878	-7.80E-06	0.00	1.99E+11	-34.7068	532224.	0.00
34.0000	2.76E-04	9381.	351.9665	-7.60E-06	0.00	1.99E+11	-30.9687	538560.	0.00
34.4000	2.40E-04	10714.	212.2273	-7.35E-06	0.00	1.99E+11	-27.2560	544896.	0.00
34.8000	2.05E-04	11418.	90.1956	-7.09E-06	0.00	1.99E+11	-23.5906	551232.	0.00
35.2000	1.72E-04	11580.	-14.3901	-6.81E-06	0.00	1.99E+11	-19.9868	557568.	0.00
35.6000	1.40E-04	11280.	-101.8439	-6.54E-06	0.00	1.99E+11	-16.4522	563904.	0.00
36.0000	1.09E-04	10602.	-172.5003	-6.27E-06	0.00	1.99E+11	-12.9879	570240.	0.00
36.4000	7.98E-05	9624.	-226.6865	-6.03E-06	0.00	1.99E+11	-9.5897	576576.	0.00
36.8000	5.15E-05	8426.	-264.6983	-5.81E-06	0.00	1.99E+11	-6.2486	582912.	0.00
37.2000	2.40E-05	7083.	-286.7800	-5.62E-06	0.00	1.99E+11	-2.9521	589248.	0.00
37.6000	-2.54E-06	5673.	-293.1085	-5.47E-06	0.00	1.99E+11	0.3152	595584.	0.00
38.0000	-2.85E-05	4269.	-283.7828	-5.35E-06	0.00	1.99E+11	3.5705	601920.	0.00
38.4000	-5.39E-05	2948.	-258.8173	-5.26E-06	0.00	1.99E+11	6.8318	608256.	0.00
38.8000	-7.90E-05	1785.	-218.1412	-5.21E-06	0.00	1.99E+11	10.1166	614592.	0.00
39.2000	-1.04E-04	854.2188	-161.6031	-5.18E-06	0.00	1.99E+11	13.4410	620928.	0.00
39.6000	-1.29E-04	233.3640	-88.9811	-5.16E-06	0.00	1.99E+11	16.8182	627264.	0.00
40.0000	-1.53E-04	0.00	0.00	-5.16E-06	0.00	1.99E+11	20.2573	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 16:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -5045551. inch-lbs
Maximum shear force               =        134392. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             49
Number of zero deflection points  =              3
```

Summary of Pile-head Responses for Conventional Analyses

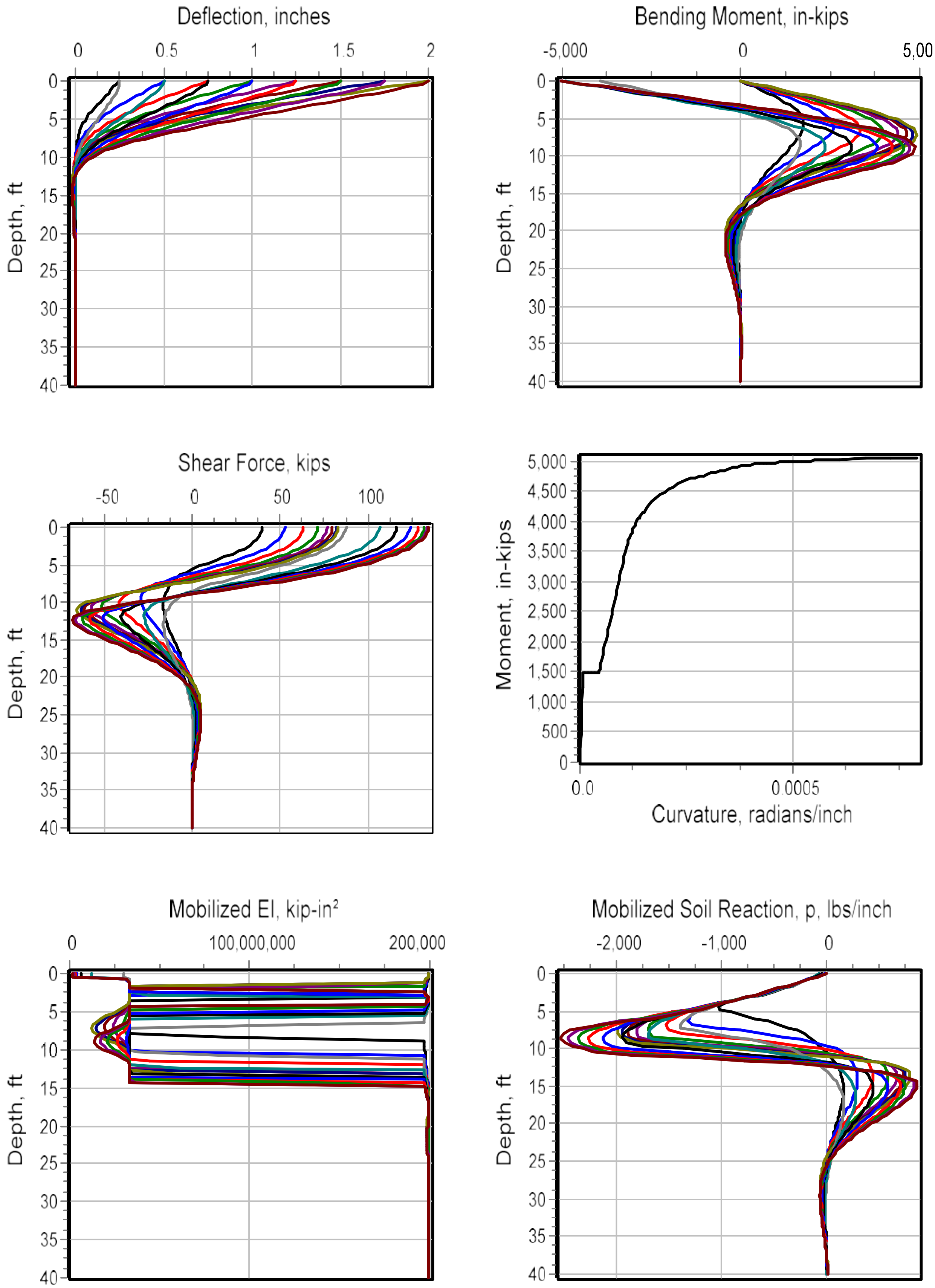
Definitions of Pile-head Loading Conditions:

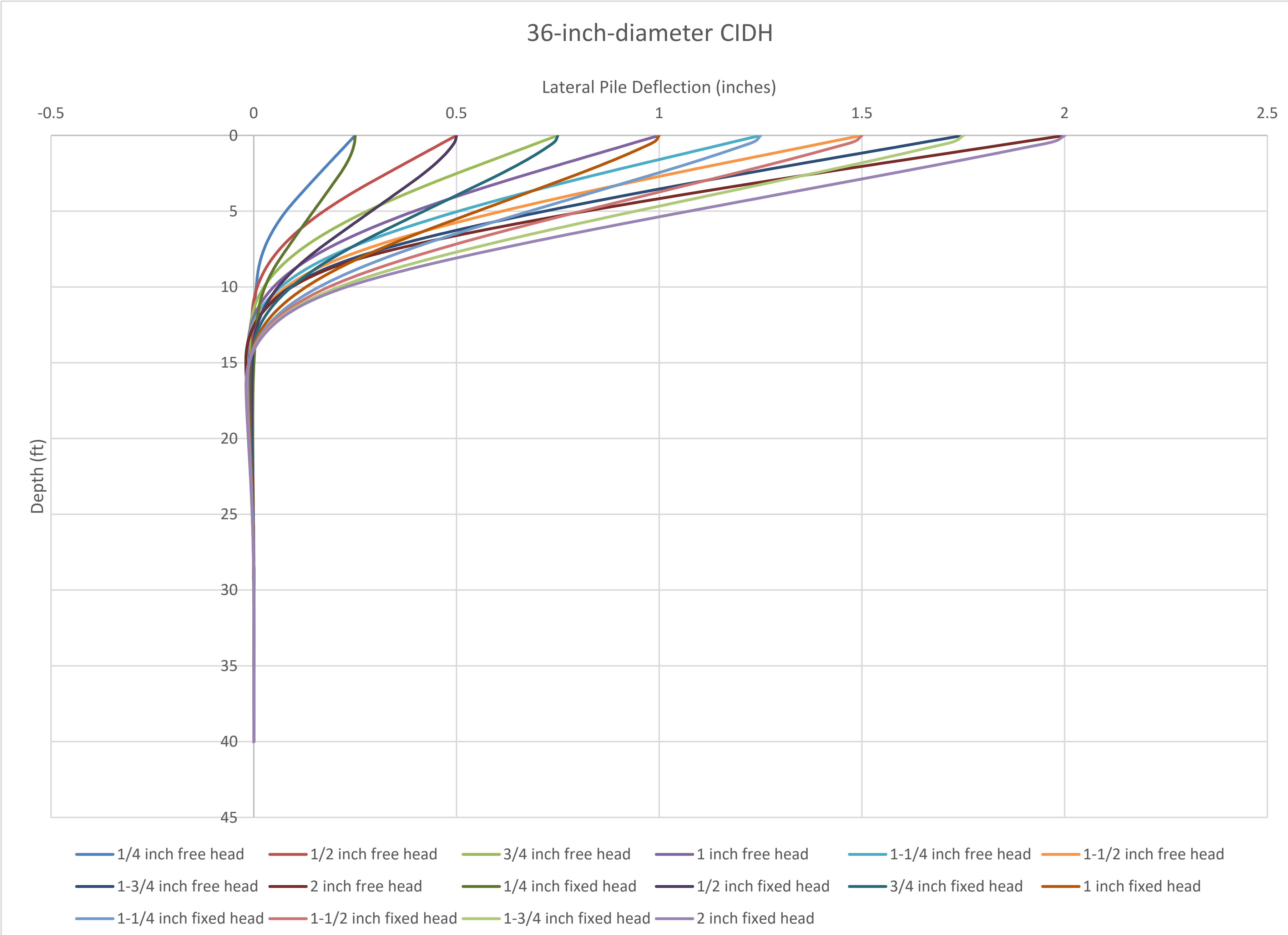
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

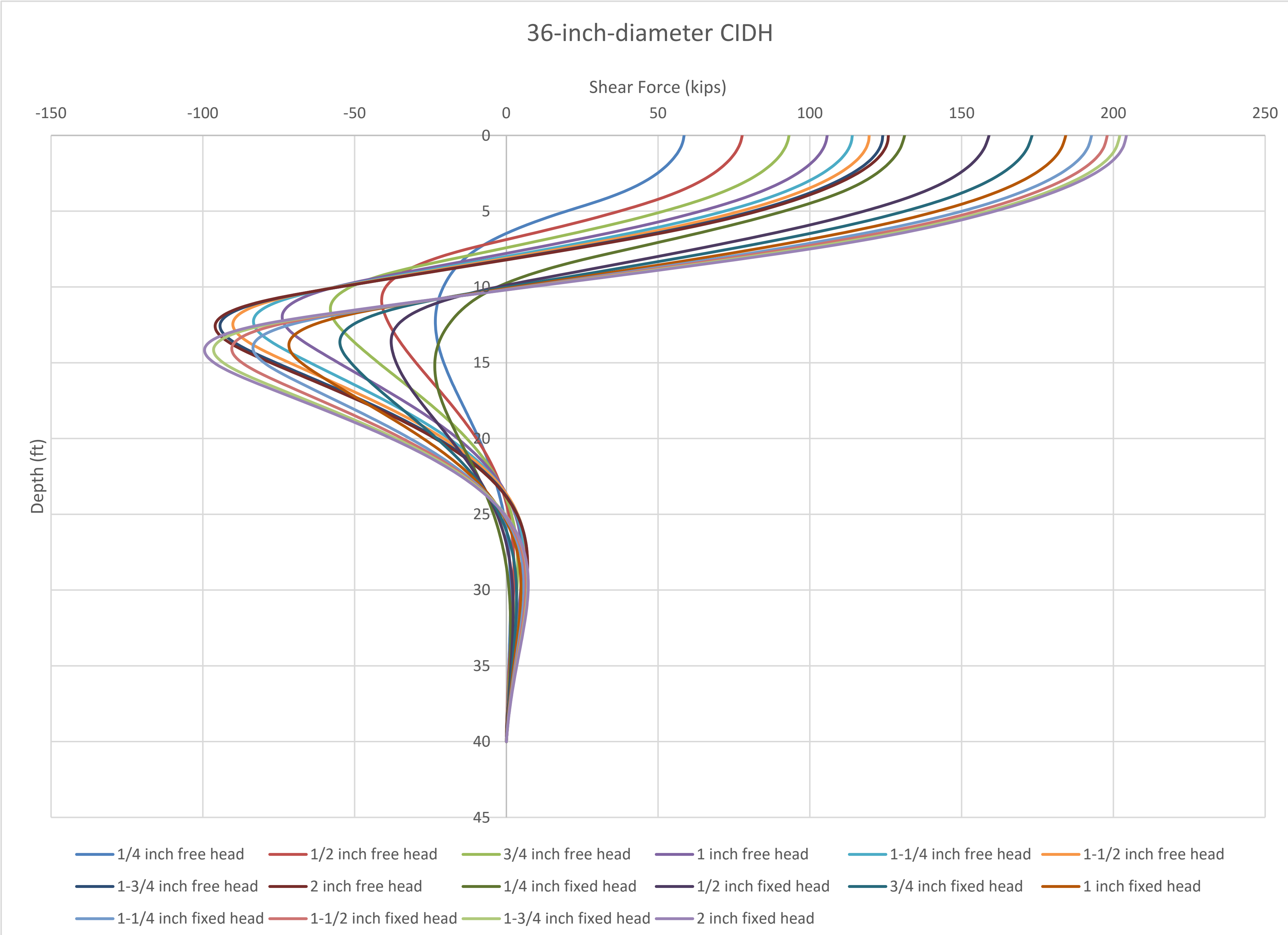
Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	y, in	0.2500	M, in-lb	0.00	0.00	0.2500	-0.00342	40055.	1763209.
2	y, in	0.5000	M, in-lb	0.00	0.00	0.5000	-0.00651	52890.	2596704.
3	y, in	0.7500	M, in-lb	0.00	0.00	0.7500	-0.00941	63161.	3346245.
4	y, in	1.0000	M, in-lb	0.00	0.00	1.0000	-0.01214	71554.	3996059.
5	y, in	1.2500	M, in-lb	0.00	0.00	1.2500	-0.01490	76828.	4406244.
6	y, in	1.5000	M, in-lb	0.00	0.00	1.5000	-0.01780	80042.	4660733.
7	y, in	1.7500	M, in-lb	0.00	0.00	1.7500	-0.02063	81992.	4822912.
8	y, in	2.0000	M, in-lb	0.00	0.00	2.0000	-0.02343	83265.	4938044.
9	y, in	0.2500	S, rad	0.00	0.00	0.2500	0.00	87630.	-3959957.
10	y, in	0.5000	S, rad	0.00	0.00	0.5000	0.00	106759.	-4936487.
11	y, in	0.7500	S, rad	0.00	0.00	0.7500	0.00	116381.	-5045793.
12	y, in	1.0000	S, rad	0.00	0.00	1.0000	0.00	124116.	-5045614.
13	y, in	1.2500	S, rad	0.00	0.00	1.2500	0.00	128956.	-5045615.
14	y, in	1.5000	S, rad	0.00	0.00	1.5000	0.00	132009.	-5045560.
15	y, in	1.7500	S, rad	0.00	0.00	1.7500	0.00	133551.	-5045599.
16	y, in	2.0000	S, rad	0.00	0.00	2.0000	0.00	134392.	-5045551.

Maximum pile-head deflection = 2.0000000000 inches
Maximum pile-head rotation = -0.0234252361 radians = -1.342167 deg.

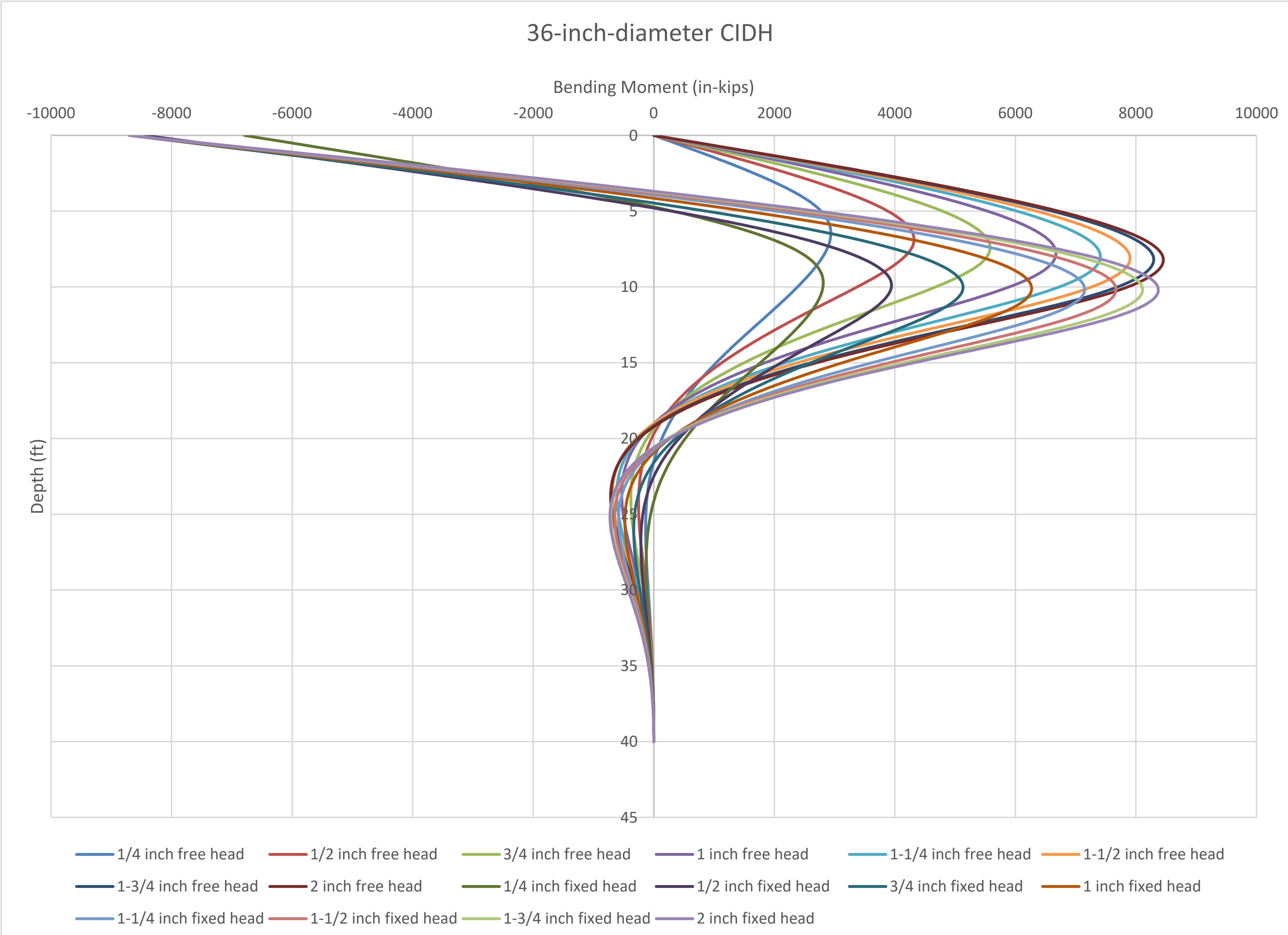
The analysis ended normally.


Deflection, inches
0 0.5 1 1.5 2
Depth, ft
0 5 10 15 20 25 30 35 40
Bending Moment, in-kips
-5,000 0 5,00
Depth, ft
0 5 10 15 20 25 30 35 40
Shear Force, kips
-50 0 50 100
Depth, ft
0 5 10 15 20 25 30 35 40
Moment, in-kips
0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000
0.0 0.0005
Curvature, radians/inch
Mobilized EI, kip-in²
0 100,000,000 200,000
Depth, ft
0 5 10 15 20 25 30 35 40
Mobilized Soil Reaction, p, lbs/inch
-2,000 -1,000 0
Depth, ft
0 5 10 15 20 25 30 35 40


36-inch-diameter CIDH
Lateral Pile Deflection (inches)
-0.5
0
0.5
1
1.5
2
2.5
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head



36-inch-diameter CIDH
Shear Force (kips)
-150
-100
-50
0
50
100
150
200
250
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head



36-inch-diameter CIDH
Bending Moment (in-kips)
-10000
-8000
-6000
-4000
-2000
0
2000
4000
6000
8000
10000
Depth (ft)
0
5
10
15
20
25
30
35
40
45
1/4 inch free head
1/2 inch free head
3/4 inch free head
1 inch free head
1-1/4 inch free head
1-1/2 inch free head
1-3/4 inch free head
2 inch free head
1/4 inch fixed head
1/2 inch fixed head
3/4 inch fixed head
1 inch fixed head
1-1/4 inch fixed head
1-1/2 inch fixed head
1-3/4 inch fixed head
2 inch fixed head

==

LPile for Windows(Beta), Version 2018-10.008

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

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This copy of LPile is being used by:

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is a violation of the software license agreement.

Files Used for Analysis

Path to file locations:
\Users\ckim\Documents\riverside arena\

Name of input data file:
RsdArena 36 CIDH 20201028.lp10

Name of output report file:
RsdArena 36 CIDH 20201028.lp10

Name of plot output file:
RsdArena 36 CIDH 20201028.lp10

Name of runtime message file:
RsdArena 36 CIDH 20201028.lp10

Date and Time of Analysis

Date: October 28, 2020 Time: 12:27:54

Problem Title

Project Name: Riverside Arena

Job Number: 12915.001

Client: CAA ICON

Engineer: ck

Description: 36 inch CIDH

Program Options and Settings

Computational Options:
- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

```
 - Maximum number of iterations allowed                =          500
 - Deflection tolerance for convergence                =   1.0000E-05 in
 - Maximum allowable deflection                        =     100.0000 in
 - Number of pile increments                           =          100
```

Loading Type and Number of Cycles of Loading:
- Static loading specified

- Use of p-y modification factors for p-y curves not selected
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:
- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	40.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	36.0000
2	40.000	36.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile

Length of section	=	40.000000 ft
Shaft Diameter	=	36.000000 in
Shear capacity of section	=	0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is cemented silt with cohesion and friction

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	100.000000 ft
Effective unit weight at top of layer	=	120.000000 pcf
Effective unit weight at bottom of layer	=	120.000000 pcf
Undrained cohesion at top of layer	=	100.000000 psf
Undrained cohesion at bottom of layer	=	100.000000 psf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Epsilon-50 at top of layer	=	0.0000
Epsilon-50 at bottom of layer	=	0.0000
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Default values for Epsilon-50 will be computed for this layer.
NOTE: Default values for subgrade k will be computed for this layer.

(Depth of the lowest soil layer extends 60.000 ft below the pile tip)

Summary of Input Soil Properties

Layer Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Cemented	0.00	120.0000	100.0000	30.0000	default	default
	Silt	100.0000	120.0000	100.0000	30.0000	default	default

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 16

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	4	y = 0.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
2	4	y = 0.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
3	4	y = 0.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
4	4	y = 1.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
5	4	y = 1.250000 in	M = 0.0000 in-lbs	0.0000000	N.A.
6	4	y = 1.500000 in	M = 0.0000 in-lbs	0.0000000	N.A.
7	4	y = 1.750000 in	M = 0.0000 in-lbs	0.0000000	N.A.
8	4	y = 2.000000 in	M = 0.0000 in-lbs	0.0000000	N.A.
9	5	y = 0.250000 in	S = 0.0000 in/in	0.0000000	N.A.
10	5	y = 0.500000 in	S = 0.0000 in/in	0.0000000	N.A.
11	5	y = 0.750000 in	S = 0.0000 in/in	0.0000000	N.A.
12	5	y = 1.000000 in	S = 0.0000 in/in	0.0000000	N.A.
13	5	y = 1.250000 in	S = 0.0000 in/in	0.0000000	N.A.
14	5	y = 1.500000 in	S = 0.0000 in/in	0.0000000	N.A.
15	5	y = 1.750000 in	S = 0.0000 in/in	0.0000000	N.A.
16	5	y = 2.000000 in	S = 0.0000 in/in	0.0000000	N.A.

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section = 40.000000 ft

Shaft Diameter	=	36.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	3.000000 in
Number of Reinforcing Bars	=	8 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	1018. sq. in.
Total Area of Reinforcing Steel	=	10.160000 sq. in.
Area Ratio of Steel Reinforcement	=	1.00 percent
Edge-to-Edge Bar Spacing	=	9.724495 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	12.97
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	4892.393 kips
Tensile Load for Cracking of Concrete	=	-500.865 kips
Nominal Axial Tensile Capacity	=	-609.600 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.270000	1.270000	14.365000	0.00000
2	1.270000	1.270000	10.157589	10.157589
3	1.270000	1.270000	0.00000	14.365000
4	1.270000	1.270000	-10.157589	10.157589
5	1.270000	1.270000	-14.365000	0.00000
6	1.270000	1.270000	-10.157589	-10.157589
7	1.270000	1.270000	0.00000	-14.365000
8	1.270000	1.270000	10.157589	-10.157589

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 9.724 inches
between bars 1 and 2.

Ratio of bar spacing to maximum aggregate size = 12.97

Concrete Properties:

Compressive Strength of Concrete	=	5000. psi
Modulus of Elasticity of Concrete	=	4030509. psi
Modulus of Rupture of Concrete	=	-530.330086 psi
Compression Strain at Peak Stress	=	0.002109
Tensile Strain at Fracture of Concrete	=	-0.0001150

Maximum Coarse Aggregate Size = 0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
6.25000E-07	259.8422241	415747559.	18.0000374	0.00001125	-0.00001125	0.0526722	0.3229882	
0.00000125	518.8104446	415048356.	18.0000375	0.00002250	-0.00002250	0.1050654	0.6459764	
0.00000188	776.9046613	414349153.	18.0000376	0.00003375	-0.00003375	0.1571798	0.9689645	
0.00000250	1034.	413649950.	18.0000377	0.00004500	-0.00004500	0.2090153	1.2919527	
0.00000313	1290.	412950747.	18.0000378	0.00005625	-0.00005625	0.2605718	1.6149409	
0.00000375	1546.	412251544.	18.0000379	0.00006750	-0.00006750	0.3118495	1.9379291	
0.00000438	1801.	411552341.	18.0000380	0.00007875	-0.00007875	0.3628482	2.2609173	
0.00000500	2054.	410853138.	18.0000381	0.00009000	-0.00009000	0.4135680	2.5839055	
0.00000563	2307.	410153935.	18.0000382	0.0001013	-0.0001012	0.4640090	2.9068937	
0.00000625	2559.	409454732.	18.0000383	0.0001125	-0.0001125	0.5141710	3.2298819	
0.00000688	2559.	372231574.	8.3497692	0.00005740	-0.0001901	0.2627854	-5.4768772	C
0.00000750	2559.	341212277.	8.3516278	0.00006264	-0.0002074	0.2863874	-5.9743709	C
0.00000813	2559.	314965178.	8.3534892	0.00006787	-0.0002246	0.3099413	-6.4717966	C
0.00000875	2559.	292467666.	8.3553535	0.00007311	-0.0002419	0.3334469	-6.9691540	C
0.00000938	2559.	272969821.	8.3572207	0.00007835	-0.0002592	0.3569043	-7.4664431	C
0.00001000	2559.	255909207.	8.3590907	0.00008359	-0.0002764	0.3803133	-7.9636637	C
0.00001063	2559.	240855725.	8.3609637	0.00008884	-0.0002937	0.4036739	-8.4608155	C
0.00001125	2559.	227474851.	8.3628396	0.00009408	-0.0003109	0.4269861	-8.9578986	C

0.00001188	2559.	215502490.	8.3647184	0.00009933	-0.0003282	0.4502498	-9.4549126	C
0.00001250	2559.	204727366.	8.3666001	0.0001046	-0.0003454	0.4734649	-9.9518574	C
0.00001313	2559.	194978444.	8.3684848	0.0001098	-0.0003627	0.4966314	-10.4487329	C
0.00001375	2559.	186115787.	8.3703724	0.0001151	-0.0003799	0.5197492	-10.9455390	C
0.00001438	2559.	178023796.	8.3722630	0.0001204	-0.0003971	0.5428183	-11.4422753	C
0.00001500	2559.	170606138.	8.3741566	0.0001256	-0.0004144	0.5658386	-11.9389418	C
0.00001563	2559.	163781893.	8.3760531	0.0001309	-0.0004316	0.5888100	-12.4355384	C
0.00001625	2559.	157482589.	8.3779526	0.0001361	-0.0004489	0.6117325	-12.9320648	C
0.00001688	2559.	151649901.	8.3798551	0.0001414	-0.0004661	0.6346061	-13.4285208	C
0.00001750	2559.	146233833.	8.3817607	0.0001467	-0.0004833	0.6574306	-13.9249064	C
0.00001813	2559.	141191287.	8.3836692	0.0001520	-0.0005005	0.6802061	-14.4212213	C
0.00001875	2559.	136484911.	8.3855808	0.0001572	-0.0005178	0.7029323	-14.9174654	C
0.00001938	2559.	132082172.	8.3874954	0.0001625	-0.0005350	0.7256094	-15.4136385	C
0.00002000	2559.	127954604.	8.3894130	0.0001678	-0.0005522	0.7482373	-15.9097404	C
0.00002063	2559.	124077191.	8.3913337	0.0001731	-0.0005694	0.7708158	-16.4057710	C
0.00002125	2559.	120427862.	8.3932575	0.0001784	-0.0005866	0.7933449	-16.9017300	C
0.00002188	2559.	116987066.	8.3951843	0.0001836	-0.0006039	0.8158245	-17.3976174	C
0.00002250	2559.	113737426.	8.3971142	0.0001889	-0.0006211	0.8382547	-17.8934329	C
0.00002313	2559.	110663441.	8.3990472	0.0001942	-0.0006383	0.8606353	-18.3891764	C
0.00002375	2559.	107751245.	8.4009833	0.0001995	-0.0006555	0.8829663	-18.8848477	C
0.00002438	2559.	104988393.	8.4029226	0.0002048	-0.0006727	0.9052476	-19.3804465	C
0.00002563	2559.	99867008.	8.4068104	0.0002154	-0.0007071	0.9496608	-20.3714265	C
0.00002688	2559.	95222031.	8.4107108	0.0002260	-0.0007415	0.9938746	-21.3621147	C
0.00002813	2559.	90989940.	8.4146239	0.0002367	-0.0007758	1.0378884	-22.3525098	C
0.00002938	2559.	87118028.	8.4185498	0.0002473	-0.0008102	1.0817017	-23.3426104	C
0.00003063	2559.	83562190.	8.4224884	0.0002579	-0.0008446	1.1253140	-24.3324149	C
0.00003188	2559.	80285242.	8.4264400	0.0002686	-0.0008789	1.1687248	-25.3219220	C
0.00003313	2559.	77255610.	8.4304046	0.0002793	-0.0009132	1.2119337	-26.3111301	C
0.00003438	2559.	74446315.	8.4343823	0.0002899	-0.0009476	1.2549400	-27.3000377	C
0.00003563	2559.	71834163.	8.4383731	0.0003006	-0.0009819	1.2977432	-28.2886433	C
0.00003688	2620.	71040638.	8.4423772	0.0003113	-0.0010162	1.3403430	-29.2769454	C
0.00003813	2707.	71015819.	8.4463947	0.0003220	-0.0010505	1.3827386	-30.2649424	C
0.00003938	2795.	70990927.	8.4504256	0.0003327	-0.0010848	1.4249296	-31.2526328	C
0.00004063	2883.	70965964.	8.4544700	0.0003435	-0.0011190	1.4669155	-32.2400150	C
0.00004188	2971.	70940929.	8.4585281	0.0003542	-0.0011533	1.5086958	-33.2270875	C
0.00004313	3058.	70915840.	8.4624803	0.0003649	-0.0011876	1.5502495	-34.2139980	C
0.00004438	3146.	70890688.	8.4663775	0.0003757	-0.0012218	1.5915835	-35.2006930	C
0.00004563	3233.	70865468.	8.4702873	0.0003865	-0.0012560	1.6327086	-36.1870886	C
0.00004688	3321.	70840176.	8.4742099	0.0003972	-0.0012903	1.6736242	-37.1731834	C
0.00004813	3408.	70814814.	8.4781454	0.0004080	-0.0013245	1.7143297	-38.1589759	C
0.00004938	3495.	70789380.	8.4820937	0.0004188	-0.0013587	1.7548247	-39.1444646	C
0.00005063	3582.	70763874.	8.4860551	0.0004296	-0.0013929	1.7951086	-40.1296480	C
0.00005188	3670.	70738296.	8.4900295	0.0004404	-0.0014271	1.8351808	-41.1145245	C
0.00005313	3757.	70712644.	8.4940171	0.0004512	-0.0014613	1.8750407	-42.0990925	C
0.00005438	3844.	70686920.	8.4980180	0.0004621	-0.0014954	1.9146879	-43.0833505	C
0.00005563	3931.	70661121.	8.5020322	0.0004729	-0.0015296	1.9541217	-44.0672968	C
0.00005688	4017.	70635249.	8.5060599	0.0004838	-0.0015637	1.9933416	-45.0509300	C
0.00005813	4104.	70609301.	8.5101012	0.0004946	-0.0015979	2.0323471	-46.0342483	C
0.00005938	4191.	70583278.	8.5141561	0.0005055	-0.0016320	2.0711374	-47.0172502	C
0.00006063	4278.	70557180.	8.5182247	0.0005164	-0.0016661	2.1097122	-47.9999339	C
0.00006188	4364.	70531005.	8.5223071	0.0005273	-0.0017002	2.1480707	-48.9822978	C
0.00006313	4451.	70504754.	8.5264035	0.0005382	-0.0017343	2.1862124	-49.9643403	C

0.00006438	4537.	70478425.	8.5305139	0.0005492	-0.0017683	2.2241367	-50.9460596	C
0.00006563	4623.	70452019.	8.5346384	0.0005601	-0.0018024	2.2618430	-51.9274540	C
0.00006688	4710.	70425535.	8.5387772	0.0005710	-0.0018365	2.2993307	-52.9085218	C
0.00006813	4796.	70398972.	8.5429302	0.0005820	-0.0018705	2.3365992	-53.8892612	C
0.00006938	4882.	70372329.	8.5470977	0.0005930	-0.0019045	2.3736478	-54.8696706	C
0.00007063	4968.	70345607.	8.5512797	0.0006039	-0.0019386	2.4104761	-55.8497480	C
0.00007188	5054.	70318805.	8.5554764	0.0006149	-0.0019726	2.4470833	-56.8294917	C
0.00007313	5140.	70291922.	8.5596878	0.0006259	-0.0020066	2.4834688	-57.8089000	C
0.00007438	5226.	70264957.	8.5639140	0.0006369	-0.0020406	2.5196320	-58.7879709	C
0.00007938	5569.	70156277.	8.5809695	0.0006811	-0.0021764	2.6620491	-60.0000000	CY
0.00008438	5910.	70046248.	8.5982714	0.0007255	-0.0023120	2.8008574	-60.0000000	CY
0.00008938	6202.	69391571.	8.5936405	0.0007681	-0.0024494	2.9299687	-60.0000000	CY
0.00009438	6436.	68199185.	8.5664566	0.0008085	-0.0025890	3.0487379	-60.0000000	CY
0.00009938	6670.	67118680.	8.5435055	0.0008490	-0.0027285	3.1644259	-60.0000000	CY
0.0001044	6893.	66038452.	8.5194566	0.0008892	-0.0028683	3.2756208	-60.0000000	CY
0.0001094	7007.	64060233.	8.4478131	0.0009240	-0.0030135	3.3686239	-60.0000000	CY
0.0001144	7078.	61886154.	8.3602645	0.0009562	-0.0031613	3.4523672	-60.0000000	CY
0.0001194	7150.	59891776.	8.2807461	0.0009885	-0.0033090	3.5341174	-60.0000000	CY
0.0001244	7221.	58055398.	8.2082967	0.0010209	-0.0034566	3.6138594	-60.0000000	CY
0.0001294	7291.	56358674.	8.1421041	0.0010534	-0.0036041	3.6915775	-60.0000000	CY
0.0001344	7362.	54784514.	8.0803642	0.0010858	-0.0037517	3.7669037	-60.0000000	CY
0.0001394	7431.	53318117.	8.0213399	0.0011180	-0.0038995	3.8394512	-60.0000000	CY
0.0001444	7500.	51951283.	7.9670097	0.0011502	-0.0040473	3.9099931	-60.0000000	CY
0.0001494	7569.	50673990.	7.9169096	0.0011826	-0.0041949	3.9785132	-60.0000000	CY
0.0001544	7638.	49477514.	7.8706359	0.0012150	-0.0043425	4.0449951	-60.0000000	CY
0.0001594	7706.	48354223.	7.8278358	0.0012476	-0.0044899	4.1094219	-60.0000000	CY
0.0001644	7775.	47297417.	7.7881997	0.0012802	-0.0046373	4.1717767	-60.0000000	CY
0.0001694	7842.	46301184.	7.7514545	0.0013129	-0.0047846	4.2320421	-60.0000000	CY
0.0001744	7909.	45358985.	7.7158957	0.0013455	-0.0049320	4.2897443	-60.0000000	CY
0.0001794	7976.	44467001.	7.6821669	0.0013780	-0.0050795	4.3451464	-60.0000000	CY
0.0001844	8043.	43621738.	7.6508027	0.0014106	-0.0052269	4.3984613	-60.0000000	CY
0.0001894	8109.	42819472.	7.6216237	0.0014433	-0.0053742	4.4496705	-60.0000000	CY
0.0001944	8166.	42013507.	7.5893110	0.0014752	-0.0055223	4.4972482	-60.0000000	CY
0.0001994	8208.	41170874.	7.5497660	0.0015052	-0.0056723	4.5401406	-60.0000000	CY
0.0002044	8235.	40295427.	7.5033052	0.0015335	-0.0058240	4.5786345	-60.0000000	CY
0.0002094	8252.	39412073.	7.4530715	0.0015605	-0.0059770	4.6137945	-60.0000000	CY
0.0002144	8263.	38546693.	7.4024950	0.0015869	-0.0061306	4.6466976	-60.0000000	CY
0.0002194	8274.	37717566.	7.3524295	0.0016129	-0.0062846	4.6776622	-60.0000000	CY
0.0002244	8285.	36922683.	7.3031170	0.0016386	-0.0064389	4.7068263	-60.0000000	CY
0.0002294	8295.	36162016.	7.2562241	0.0016644	-0.0065931	4.7346753	-60.0000000	CY
0.0002344	8305.	35433373.	7.2115981	0.0016902	-0.0067473	4.7611994	-60.0000000	CY
0.0002394	8315.	34734740.	7.1690988	0.0017161	-0.0069014	4.7863886	-60.0000000	CY
0.0002444	8324.	34064272.	7.1285977	0.0017421	-0.0070554	4.8102327	-60.0000000	CY
0.0002494	8334.	33420266.	7.0899767	0.0017681	-0.0072094	4.8327215	-60.0000000	CY
0.0002544	8344.	32801159.	7.0531268	0.0017941	-0.0073634	4.8538446	-60.0000000	CY
0.0002594	8353.	32205309.	7.0177527	0.0018202	-0.0075173	4.8735533	-60.0000000	CY
0.0002644	8362.	31628587.	6.9809410	0.0018456	-0.0076719	4.8913228	-60.0000000	CY
0.0002694	8370.	31072915.	6.9457302	0.0018710	-0.0078265	4.9077881	-60.0000000	CY
0.0002744	8379.	30537137.	6.9120351	0.0018965	-0.0079810	4.9229392	-60.0000000	CY
0.0003044	8427.	27685107.	6.7376205	0.0020508	-0.0089067	4.9856602	-60.0000000	CY
0.0003344	8469.	25328599.	6.5956809	0.0022054	-0.0098321	4.9920587	60.0000000	CY
0.0003644	8506.	23343776.	6.4779420	0.0023604	-0.0107571	4.9934290	60.0000000	CY

0.0003944	8539.	21650852.	6.3852117	0.0025182	-0.0116793	4.9913613	60.0000000	CY
0.0004244	8568.	20188996.	6.3118132	0.0026786	-0.0125989	4.9845004	60.0000000	CY
0.0004544	8593.	18911463.	6.2471724	0.0028386	-0.0135189	4.9999533	60.0000000	CY
0.0004844	8615.	17786119.	6.1945329	0.0030005	-0.0144370	4.9948777	60.0000000	CYT
0.0005144	8635.	16788264.	6.1520916	0.0031645	-0.0153530	4.9835440	60.0000000	CYT
0.0005444	8654.	15896849.	6.1182331	0.0033306	-0.0162669	4.9969438	60.0000000	CYT
0.0005744	8671.	15095659.	6.0913626	0.0034987	-0.0171788	4.9796991	60.0000000	CYT
0.0006044	8686.	14371538.	6.0702385	0.0036687	-0.0180888	4.9941677	60.0000000	CYT
0.0006344	8700.	13714064.	6.0536434	0.0038403	-0.0189972	4.9917719	60.0000000	CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.000	8615.086	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	8615.	0.0000	5600.	70146240.
1	0.70	8615.	0.0000	6031.	69776028.
1	0.75	8615.	0.0000	6461.	68083483.

Computed Values of Pile Loading and Deflection

RsdArena 36 CIDH 20201028.lp10o
for Lateral Loading for Load Case Number 1

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 0.250000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	0.00	58541.	-0.00294	0.00	4.16E+11	-37.2299	357.4074	0.00
0.4000	0.2359	280568.	58185.	-0.00294	0.00	4.16E+11	-111.1606	2262.	0.00
0.8000	0.2218	558575.	57426.	-0.00294	0.00	4.15E+11	-204.9347	4436.	0.00
1.2000	0.2077	831860.	56239.	-0.00293	0.00	4.14E+11	-289.8798	6700.	0.00
1.6000	0.1937	1098466.	54677.	-0.00292	0.00	4.13E+11	-361.0119	8948.	0.00
2.0000	0.1797	1356755.	52744.	-0.00290	0.00	4.13E+11	-444.0398	11862.	0.00
2.4000	0.1658	1604813.	50382.	-0.00289	0.00	4.12E+11	-540.3895	15646.	0.00
2.8000	0.1520	1840420.	47518.	-0.00287	0.00	4.11E+11	-652.7147	20615.	0.00
3.2000	0.1383	2060989.	44072.	-0.00284	0.00	4.11E+11	-783.3787	27194.	0.00
3.6000	0.1247	2263508.	39945.	-0.00282	0.00	4.10E+11	-936.1927	36040.	0.00
4.0000	0.1112	2444458.	35014.	-0.00279	0.00	4.10E+11	-1118.	48265.	0.00
4.4000	0.09790	2599640.	29260.	-0.00269	0.00	7.13E+10	-1279.	62698.	0.00
4.8000	0.08542	2725359.	22944.	-0.00251	0.00	7.10E+10	-1353.	76032.	0.00
5.2000	0.07382	2819903.	16657.	-0.00232	0.00	7.10E+10	-1267.	82368.	0.00
5.6000	0.06314	2885262.	10816.	-0.00213	0.00	7.10E+10	-1167.	88704.	0.00
6.0000	0.05339	2923740.	5479.	-0.00193	0.00	7.10E+10	-1057.	95040.	0.00
6.4000	0.04459	2937862.	681.9197	-0.00173	0.00	7.10E+10	-941.7433	101376.	0.00
6.8000	0.03675	2930286.	-3557.	-0.00154	0.00	7.10E+10	-824.5856	107712.	0.00
7.2000	0.02985	2903712.	-7239.	-0.00134	0.00	7.10E+10	-709.3286	114048.	0.00
7.6000	0.02390	2860795.	-10380.	-0.00114	0.00	7.10E+10	-599.5213	120384.	0.00
8.0000	0.01888	2804065.	-13015.	-9.51E-04	0.00	7.10E+10	-498.5253	126720.	0.00
8.4000	0.01477	2735849.	-15194.	-7.64E-04	0.00	7.10E+10	-409.5019	133056.	0.00
8.8000	0.01155	2658198.	-16982.	-5.82E-04	0.00	7.10E+10	-335.4052	139392.	0.00
9.2000	0.00919	2572819.	-18457.	-4.18E-04	0.00	8.37E+10	-278.9774	145728.	0.00
9.6000	0.00754	2481013.	-19699.	-3.26E-04	0.00	3.27E+11	-238.7588	152064.	0.00
10.0000	0.00606	2383705.	-20752.	-2.94E-04	0.00	4.10E+11	-199.9395	158400.	0.00
10.4000	0.00471	2281792.	-21620.	-2.67E-04	0.00	4.10E+11	-161.8169	164736.	0.00
10.8000	0.00350	2176149.	-22308.	-2.41E-04	0.00	4.10E+11	-124.7142	171072.	0.00
11.2000	0.00241	2067634.	-22821.	-2.16E-04	0.00	4.11E+11	-88.9163	177408.	0.00
11.6000	0.00143	1957069.	-23165.	-1.92E-04	0.00	4.11E+11	-54.6706	183744.	0.00
12.0000	5.60E-04	1845246.	-23350.	-1.70E-04	0.00	4.11E+11	-22.1876	190080.	0.00
12.4000	-2.04E-04	1732910.	-23383.	-1.49E-04	0.00	4.12E+11	8.3582	196416.	0.00
12.8000	-8.72E-04	1620768.	-23275.	-1.30E-04	0.00	4.12E+11	36.8261	202752.	0.00
13.2000	-0.00145	1509474.	-23035.	-1.11E-04	0.00	4.12E+11	63.1085	209088.	0.00
13.6000	-0.00194	1399634.	-22674.	-9.45E-05	0.00	4.13E+11	87.1287	215424.	0.00
14.0000	-0.00236	1291801.	-22204.	-7.88E-05	0.00	4.13E+11	108.8387	221760.	0.00
14.4000	-0.00270	1186476.	-21635.	-6.44E-05	0.00	4.13E+11	128.2178	228096.	0.00
14.8000	-0.00297	1084106.	-20979.	-5.13E-05	0.00	4.13E+11	145.2696	234432.	0.00
15.2000	-0.00319	985082.	-20246.	-3.92E-05	0.00	4.14E+11	160.0205	240768.	0.00
15.6000	-0.00335	889745.	-19448.	-2.84E-05	0.00	4.14E+11	172.5173	247104.	0.00

16.0000	-0.00346	798383.	-18595.	-1.86E-05	0.00	4.14E+11	182.8245	253440.	0.00
16.4000	-0.00353	711233.	-17698.	-9.85E-06	0.00	4.14E+11	191.0229	259776.	0.00
16.8000	-0.00356	628484.	-16766.	-2.09E-06	0.00	4.15E+11	197.2063	266112.	0.00
17.2000	-0.00355	550279.	-15809.	4.73E-06	0.00	4.15E+11	201.4803	272448.	0.00
17.6000	-0.00351	476717.	-14836.	1.07E-05	0.00	4.15E+11	203.9600	278784.	0.00
18.0000	-0.00345	407853.	-13855.	1.58E-05	0.00	4.15E+11	204.7678	285120.	0.00
18.4000	-0.00336	343707.	-12874.	2.01E-05	0.00	4.15E+11	204.0314	291456.	0.00
18.8000	-0.00325	284262.	-11900.	2.38E-05	0.00	4.16E+11	201.8824	297792.	0.00
19.2000	-0.00313	229468.	-10939.	2.67E-05	0.00	4.16E+11	198.4548	304128.	0.00
19.6000	-0.00300	179247.	-9997.	2.91E-05	0.00	4.16E+11	193.8829	310464.	0.00
20.0000	-0.00285	133493.	-9080.	3.09E-05	0.00	4.16E+11	188.3000	316800.	0.00
20.4000	-0.00270	92078.	-8192.	3.22E-05	0.00	4.16E+11	181.8375	323136.	0.00
20.8000	-0.00254	54851.	-7336.	3.30E-05	0.00	4.16E+11	174.6237	329472.	0.00
21.2000	-0.00238	21649.	-6517.	3.35E-05	0.00	4.16E+11	166.7826	335808.	0.00
21.6000	-0.00222	-7712.	-5736.	3.36E-05	0.00	4.16E+11	158.4333	342144.	0.00
22.0000	-0.00206	-33421.	-4997.	3.33E-05	0.00	4.16E+11	149.6893	348480.	0.00
22.4000	-0.00190	-55682.	-4300.	3.28E-05	0.00	4.16E+11	140.6576	354816.	0.00
22.8000	-0.00175	-74703.	-3647.	3.21E-05	0.00	4.16E+11	131.4382	361152.	0.00
23.2000	-0.00160	-90695.	-3039.	3.11E-05	0.00	4.16E+11	122.1242	367488.	0.00
23.6000	-0.00145	-103873.	-2475.	3.00E-05	0.00	4.16E+11	112.8010	373824.	0.00
24.0000	-0.00131	-114452.	-1955.	2.87E-05	0.00	4.16E+11	103.5462	380160.	0.00
24.4000	-0.00117	-122645.	-1480.	2.73E-05	0.00	4.16E+11	94.4300	386496.	0.00
24.8000	-0.00104	-128663.	-1048.	2.59E-05	0.00	4.16E+11	85.5145	392832.	0.00
25.2000	-9.24E-04	-132711.	-658.8001	2.44E-05	0.00	4.16E+11	76.8544	399168.	0.00
25.6000	-8.11E-04	-134988.	-309.9567	2.28E-05	0.00	4.16E+11	68.4970	405504.	0.00
26.0000	-7.05E-04	-135687.	-0.4070	2.13E-05	0.00	4.16E+11	60.4821	411840.	0.00
26.4000	-6.07E-04	-134992.	271.5725	1.97E-05	0.00	4.16E+11	52.8427	418176.	0.00
26.8000	-5.16E-04	-133079.	507.8479	1.82E-05	0.00	4.16E+11	45.6053	424512.	0.00
27.2000	-4.32E-04	-130116.	710.3965	1.66E-05	0.00	4.16E+11	38.7899	430848.	0.00
27.6000	-3.56E-04	-126260.	881.2785	1.52E-05	0.00	4.16E+11	32.4109	437184.	0.00
28.0000	-2.87E-04	-121656.	1023.	1.37E-05	0.00	4.16E+11	26.4769	443520.	0.00
28.4000	-2.24E-04	-116443.	1137.	1.24E-05	0.00	4.16E+11	20.9918	449856.	0.00
28.8000	-1.68E-04	-110745.	1225.	1.11E-05	0.00	4.16E+11	15.9548	456192.	0.00
29.2000	-1.18E-04	-104681.	1291.	9.81E-06	0.00	4.16E+11	11.3611	462528.	0.00
29.6000	-7.37E-05	-98354.	1335.	8.63E-06	0.00	4.16E+11	7.2022	468864.	0.00
30.0000	-3.50E-05	-91862.	1361.	7.54E-06	0.00	4.16E+11	3.4662	475200.	0.00
30.4000	-1.38E-06	-85289.	1370.	6.51E-06	0.00	4.16E+11	0.1387	481536.	0.00
30.8000	2.75E-05	-78714.	1363.	5.57E-06	0.00	4.16E+11	-2.7971	487872.	0.00
31.2000	5.21E-05	-72203.	1344.	4.70E-06	0.00	4.16E+11	-5.3601	494208.	0.00
31.6000	7.26E-05	-65815.	1313.	3.90E-06	0.00	4.16E+11	-7.5707	500544.	0.00
32.0000	8.95E-05	-59602.	1272.	3.18E-06	0.00	4.16E+11	-9.4503	506880.	0.00
32.4000	1.03E-04	-53606.	1223.	2.52E-06	0.00	4.16E+11	-11.0213	513216.	0.00
32.8000	1.14E-04	-47865.	1167.	1.94E-06	0.00	4.16E+11	-12.3067	519552.	0.00
33.2000	1.22E-04	-42407.	1105.	1.41E-06	0.00	4.16E+11	-13.3295	525888.	0.00
33.6000	1.27E-04	-37256.	1039.	9.55E-07	0.00	4.16E+11	-14.1127	532224.	0.00
34.0000	1.31E-04	-32430.	970.1222	5.53E-07	0.00	4.16E+11	-14.6791	538560.	0.00
34.4000	1.33E-04	-27943.	898.7703	2.04E-07	0.00	4.16E+11	-15.0508	544896.	0.00
34.8000	1.33E-04	-23802.	826.0498	-9.47E-08	0.00	4.16E+11	-15.2494	551232.	0.00
35.2000	1.32E-04	-20013.	752.7427	-3.48E-07	0.00	4.16E+11	-15.2952	557568.	0.00
35.6000	1.29E-04	-16576.	679.5352	-5.59E-07	0.00	4.16E+11	-15.2079	563904.	0.00
36.0000	1.26E-04	-13489.	607.0232	-7.32E-07	0.00	4.16E+11	-15.0055	570240.	0.00
36.4000	1.22E-04	-10748.	535.7180	-8.72E-07	0.00	4.16E+11	-14.7050	576576.	0.00

36.8000	1.18E-04	-8346.	466.0533	-9.83E-07	0.00	4.16E+11	-14.3219	582912.	0.00
37.2000	1.13E-04	-6274.	398.3920	-1.07E-06	0.00	4.16E+11	-13.8702	589248.	0.00
37.6000	1.08E-04	-4522.	333.0338	-1.13E-06	0.00	4.16E+11	-13.3623	595584.	0.00
38.0000	1.02E-04	-3077.	270.2224	-1.17E-06	0.00	4.16E+11	-12.8090	601920.	0.00
38.4000	9.64E-05	-1928.	210.1540	-1.20E-06	0.00	4.16E+11	-12.2195	608256.	0.00
38.8000	9.06E-05	-1060.	152.9844	-1.22E-06	0.00	4.16E+11	-11.6012	614592.	0.00
39.2000	8.47E-05	-459.0232	98.8379	-1.23E-06	0.00	4.16E+11	-10.9599	620928.	0.00
39.6000	7.88E-05	-110.8589	47.8149	-1.23E-06	0.00	4.16E+11	-10.2997	627264.	0.00
40.0000	7.29E-05	0.00	0.00	-1.23E-06	0.00	4.16E+11	-9.6232	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =     0.25000000 inches
Computed slope at pile head       =    -0.00294289 radians
Maximum bending moment            =       2937862. inch-lbs
Maximum shear force               =         58541. lbs
Depth of maximum bending moment   =     6.40000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             38
Number of zero deflection points =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                            =     0.500000 inches
Moment at pile head                                  =          0.0 in-lbs
Axial load at pile head                              =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	0.00	77708.	-0.00574	0.00	4.16E+11	-64.8211	311.1412	0.00
0.4000	0.4725	372252.	77234.	-0.00573	0.00	4.16E+11	-132.8529	1350.	0.00
0.8000	0.4449	741442.	76403.	-0.00573	0.00	4.14E+11	-213.0883	2299.	0.00
1.2000	0.4175	1105723.	75178.	-0.00572	0.00	4.13E+11	-297.3446	3419.	0.00
1.6000	0.3901	1463154.	73548.	-0.00570	0.00	4.12E+11	-381.7474	4698.	0.00
2.0000	0.3627	1811788.	71493.	-0.00568	0.00	4.12E+11	-474.7528	6282.	0.00
2.4000	0.3355	2149485.	68967.	-0.00566	0.00	4.11E+11	-577.5993	8264.	0.00

2.8000	0.3084	2473873.	65920.	-0.00563	0.00	4.10E+11	-692.2110	10774.	0.00
3.2000	0.2814	2782314.	62289.	-0.00552	0.00	7.10E+10	-820.5303	13996.	0.00
3.6000	0.2553	3071849.	58002.	-0.00533	0.00	7.09E+10	-965.5561	18151.	0.00
4.0000	0.2303	3339137.	52968.	-0.00511	0.00	7.08E+10	-1132.	23600.	0.00
4.4000	0.2063	3580340.	47152.	-0.00488	0.00	7.08E+10	-1291.	30036.	0.00
4.8000	0.1835	3791800.	40673.	-0.00463	0.00	7.07E+10	-1409.	36858.	0.00
5.2000	0.1619	3970800.	33647.	-0.00436	0.00	7.06E+10	-1519.	45028.	0.00
5.6000	0.1416	4114810.	26132.	-0.00409	0.00	7.06E+10	-1613.	54664.	0.00
6.0000	0.1227	4221664.	18215.	-0.00380	0.00	7.06E+10	-1686.	65970.	0.00
6.4000	0.1051	4289677.	9981.	-0.00351	0.00	7.06E+10	-1745.	79703.	0.00
6.8000	0.08893	4317483.	1527.	-0.00322	0.00	7.05E+10	-1777.	95939.	0.00
7.2000	0.07417	4304336.	-6969.	-0.00293	0.00	7.05E+10	-1762.	114048.	0.00
7.6000	0.06082	4250584.	-14859.	-0.00264	0.00	7.06E+10	-1525.	120384.	0.00
8.0000	0.04886	4161685.	-21616.	-0.00235	0.00	7.06E+10	-1290.	126720.	0.00
8.4000	0.03826	4043066.	-27258.	-0.00207	0.00	7.06E+10	-1061.	133056.	0.00
8.8000	0.02897	3900011.	-31822.	-0.00180	0.00	7.07E+10	-841.4139	139392.	0.00
9.2000	0.02096	3737571.	-35369.	-0.00154	0.00	7.07E+10	-636.3818	145728.	0.00
9.6000	0.01417	3560468.	-37973.	-0.00129	0.00	7.08E+10	-448.7719	152064.	0.00
10.0000	0.00853	3373025.	-39726.	-0.00106	0.00	7.08E+10	-281.4741	158400.	0.00
10.4000	0.00399	3179098.	-40730.	-8.38E-04	0.00	7.09E+10	-136.9550	164736.	0.00
10.8000	4.85E-04	2982015.	-41100.	-6.29E-04	0.00	7.09E+10	-17.2824	171072.	0.00
11.2000	-0.00205	2784533.	-40960.	-4.34E-04	0.00	7.10E+10	75.8479	177408.	0.00
11.6000	-0.00369	2588800.	-40439.	-2.53E-04	0.00	7.14E+10	141.0833	183744.	0.00
12.0000	-0.00448	2396316.	-39675.	-1.52E-04	0.00	4.10E+11	177.5693	190080.	0.00
12.4000	-0.00515	2207924.	-38743.	-1.25E-04	0.00	4.10E+11	210.6516	196416.	0.00
12.8000	-0.00569	2024386.	-37661.	-1.01E-04	0.00	4.11E+11	240.2506	202752.	0.00
13.2000	-0.00611	1846382.	-36445.	-7.81E-05	0.00	4.11E+11	266.3307	209088.	0.00
13.6000	-0.00644	1674515.	-35112.	-5.75E-05	0.00	4.12E+11	288.8957	215424.	0.00
14.0000	-0.00667	1509305.	-33680.	-3.90E-05	0.00	4.12E+11	307.9856	221760.	0.00
14.4000	-0.00681	1351190.	-32164.	-2.23E-05	0.00	4.13E+11	323.6733	228096.	0.00
14.8000	-0.00688	1200532.	-30580.	-7.51E-06	0.00	4.13E+11	336.0600	234432.	0.00
15.2000	-0.00688	1057618.	-28945.	5.60E-06	0.00	4.14E+11	345.2722	240768.	0.00
15.6000	-0.00683	922658.	-27273.	1.71E-05	0.00	4.14E+11	351.4579	247104.	0.00
16.0000	-0.00672	795796.	-25578.	2.70E-05	0.00	4.14E+11	354.7832	253440.	0.00
16.4000	-0.00657	677109.	-23874.	3.56E-05	0.00	4.15E+11	355.4289	259776.	0.00
16.8000	-0.00638	566610.	-22172.	4.28E-05	0.00	4.15E+11	353.5872	266112.	0.00
17.2000	-0.00616	464258.	-20485.	4.87E-05	0.00	4.15E+11	349.4588	272448.	0.00
17.6000	-0.00591	369958.	-18822.	5.36E-05	0.00	4.15E+11	343.2504	278784.	0.00
18.0000	-0.00564	283566.	-17194.	5.73E-05	0.00	4.16E+11	335.1712	285120.	0.00
18.4000	-0.00536	204896.	-15608.	6.02E-05	0.00	4.16E+11	325.4319	291456.	0.00
18.8000	-0.00507	133724.	-14073.	6.21E-05	0.00	4.16E+11	314.2407	297792.	0.00
19.2000	-0.00476	69793.	-12595.	6.33E-05	0.00	4.16E+11	301.8028	304128.	0.00
19.6000	-0.00446	12815.	-11178.	6.38E-05	0.00	4.16E+11	288.3178	310464.	0.00
20.0000	-0.00415	-37520.	-9829.	6.36E-05	0.00	4.16E+11	273.9790	316800.	0.00
20.4000	-0.00385	-81543.	-8550.	6.29E-05	0.00	4.16E+11	258.9712	323136.	0.00
20.8000	-0.00355	-119599.	-7344.	6.18E-05	0.00	4.16E+11	243.4702	329472.	0.00
21.2000	-0.00325	-152045.	-6213.	6.02E-05	0.00	4.16E+11	227.6413	335808.	0.00
21.6000	-0.00297	-179247.	-5159.	5.83E-05	0.00	4.16E+11	211.6391	342144.	0.00
22.0000	-0.00269	-201572.	-4182.	5.61E-05	0.00	4.16E+11	195.6063	348480.	0.00
22.4000	-0.00243	-219391.	-3281.	5.37E-05	0.00	4.16E+11	179.6737	354816.	0.00
22.8000	-0.00218	-233070.	-2456.	5.10E-05	0.00	4.16E+11	163.9599	361152.	0.00
23.2000	-0.00194	-242971.	-1706.	4.83E-05	0.00	4.16E+11	148.5710	367488.	0.00

23.6000	-0.00172	-249450.	-1029.	4.55E-05	0.00	4.16E+11	133.6009	373824.	0.00
24.0000	-0.00150	-252850.	-422.4393	4.26E-05	0.00	4.16E+11	119.1314	380160.	0.00
24.4000	-0.00131	-253505.	116.0335	3.96E-05	0.00	4.16E+11	105.2323	386496.	0.00
24.8000	-0.00112	-251736.	589.3005	3.67E-05	0.00	4.16E+11	91.9623	392832.	0.00
25.2000	-9.54E-04	-247848.	1000.	3.38E-05	0.00	4.16E+11	79.3686	399168.	0.00
25.6000	-7.99E-04	-242131.	1353.	3.10E-05	0.00	4.16E+11	67.4884	405504.	0.00
26.0000	-6.57E-04	-234859.	1650.	2.83E-05	0.00	4.16E+11	56.3489	411840.	0.00
26.4000	-5.28E-04	-226290.	1896.	2.56E-05	0.00	4.16E+11	45.9681	418176.	0.00
26.8000	-4.11E-04	-216661.	2093.	2.30E-05	0.00	4.16E+11	36.3556	424512.	0.00
27.2000	-3.07E-04	-206194.	2247.	2.06E-05	0.00	4.16E+11	27.5131	430848.	0.00
27.6000	-2.13E-04	-195093.	2359.	1.83E-05	0.00	4.16E+11	19.4353	437184.	0.00
28.0000	-1.31E-04	-183545.	2435.	1.61E-05	0.00	4.16E+11	12.1106	443520.	0.00
28.4000	-5.89E-05	-171718.	2477.	1.40E-05	0.00	4.16E+11	5.5219	449856.	0.00
28.8000	3.71E-06	-159763.	2490.	1.21E-05	0.00	4.16E+11	-0.3528	456192.	0.00
29.2000	5.75E-05	-147817.	2476.	1.04E-05	0.00	4.16E+11	-5.5397	462528.	0.00
29.6000	1.03E-04	-135998.	2438.	8.71E-06	0.00	4.16E+11	-10.0685	468864.	0.00
30.0000	1.41E-04	-124411.	2380.	7.21E-06	0.00	4.16E+11	-13.9714	475200.	0.00
30.4000	1.72E-04	-113146.	2305.	5.84E-06	0.00	4.16E+11	-17.2831	481536.	0.00
30.8000	1.97E-04	-102279.	2216.	4.59E-06	0.00	4.16E+11	-20.0398	487872.	0.00
31.2000	2.16E-04	-91874.	2114.	3.47E-06	0.00	4.16E+11	-22.2785	494208.	0.00
31.6000	2.31E-04	-81982.	2003.	2.47E-06	0.00	4.16E+11	-24.0371	500544.	0.00
32.0000	2.40E-04	-72644.	1885.	1.58E-06	0.00	4.16E+11	-25.3531	506880.	0.00
32.4000	2.46E-04	-63891.	1761.	7.89E-07	0.00	4.16E+11	-26.2640	513216.	0.00
32.8000	2.48E-04	-55742.	1633.	9.80E-08	0.00	4.16E+11	-26.8064	519552.	0.00
33.2000	2.47E-04	-48211.	1504.	-5.02E-07	0.00	4.16E+11	-27.0156	525888.	0.00
33.6000	2.43E-04	-41302.	1375.	-1.02E-06	0.00	4.16E+11	-26.9257	532224.	0.00
34.0000	2.37E-04	-35014.	1246.	-1.46E-06	0.00	4.16E+11	-26.5691	538560.	0.00
34.4000	2.29E-04	-29338.	1120.	-1.83E-06	0.00	4.16E+11	-25.9763	544896.	0.00
34.8000	2.19E-04	-24260.	997.4105	-2.14E-06	0.00	4.16E+11	-25.1758	551232.	0.00
35.2000	2.08E-04	-19763.	878.9239	-2.39E-06	0.00	4.16E+11	-24.1937	557568.	0.00
35.6000	1.96E-04	-15823.	765.5294	-2.60E-06	0.00	4.16E+11	-23.0540	563904.	0.00
36.0000	1.83E-04	-12414.	657.9315	-2.76E-06	0.00	4.16E+11	-21.7784	570240.	0.00
36.4000	1.70E-04	-9507.	556.7367	-2.89E-06	0.00	4.16E+11	-20.3861	576576.	0.00
36.8000	1.56E-04	-7069.	462.4649	-2.99E-06	0.00	4.16E+11	-18.8938	582912.	0.00
37.2000	1.41E-04	-5067.	375.5608	-3.06E-06	0.00	4.16E+11	-17.3162	589248.	0.00
37.6000	1.26E-04	-3464.	296.4050	-3.10E-06	0.00	4.16E+11	-15.6654	595584.	0.00
38.0000	1.11E-04	-2221.	225.3249	-3.14E-06	0.00	4.16E+11	-13.9514	601920.	0.00
38.4000	9.61E-05	-1301.	162.6043	-3.16E-06	0.00	4.16E+11	-12.1822	608256.	0.00
38.8000	8.09E-05	-660.4633	108.4937	-3.17E-06	0.00	4.16E+11	-10.3639	614592.	0.00
39.2000	6.57E-05	-259.0851	63.2188	-3.17E-06	0.00	4.16E+11	-8.5007	620928.	0.00
39.6000	5.05E-05	-53.5630	26.9880	-3.18E-06	0.00	4.16E+11	-6.5954	627264.	0.00
40.0000	3.52E-05	0.00	0.00	-3.18E-06	0.00	4.16E+11	-4.6496	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

```
Pile-head deflection               =     0.50000000 inches
Computed slope at pile head        =    -0.00573691 radians
Maximum bending moment             =       4317483. inch-lbs
Maximum shear force                =         77708. lbs
Depth of maximum bending moment    =     6.80000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             33
Number of zero deflection points   =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 3

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                              =     0.750000 inches
Moment at pile head                                    =          0.0 in-lbs
Axial load at pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	0.00	93139.	-0.00833	0.00	4.16E+11	-60.0000	192.0000	0.00
0.4000	0.7100	446375.	92672.	-0.00833	0.00	4.16E+11	-134.6087	910.0252	0.00
0.8000	0.6700	889648.	91832.	-0.00832	0.00	4.14E+11	-215.2684	1542.	0.00
1.2000	0.6301	1327961.	90591.	-0.00831	0.00	4.13E+11	-301.8417	2299.	0.00
1.6000	0.5903	1759320.	88920.	-0.00829	0.00	4.12E+11	-394.5588	3209.	0.00
2.0000	0.5505	2181588.	86787.	-0.00827	0.00	4.10E+11	-493.9690	4307.	0.00
2.4000	0.5109	2592476.	84159.	-0.00817	0.00	7.14E+10	-600.9739	5646.	0.00
2.8000	0.4721	2989517.	80996.	-0.00798	0.00	7.09E+10	-717.0717	7291.	0.00
3.2000	0.4343	3370036.	77249.	-0.00776	0.00	7.08E+10	-844.0060	9329.	0.00
3.6000	0.3976	3731110.	72862.	-0.00752	0.00	7.07E+10	-984.0567	11881.	0.00
4.0000	0.3621	4069511.	67762.	-0.00726	0.00	7.06E+10	-1141.	15124.	0.00
4.4000	0.3279	4381628.	61909.	-0.00697	0.00	7.05E+10	-1298.	19007.	0.00
4.8000	0.2951	4663833.	55361.	-0.00666	0.00	7.04E+10	-1430.	23254.	0.00
5.2000	0.2639	4913097.	48193.	-0.00634	0.00	7.04E+10	-1557.	28323.	0.00
5.6000	0.2343	5126482.	40437.	-0.00599	0.00	7.03E+10	-1674.	34304.	0.00
6.0000	0.2064	5301291.	32156.	-0.00564	0.00	7.02E+10	-1776.	41315.	0.00
6.4000	0.1802	5435177.	23414.	-0.00527	0.00	7.02E+10	-1866.	49717.	0.00
6.8000	0.1557	5526070.	14296.	-0.00490	0.00	7.02E+10	-1933.	59580.	0.00
7.2000	0.1332	5572422.	4921.	-0.00452	0.00	7.02E+10	-1973.	71127.	0.00
7.6000	0.1124	5573315.	-4590.	-0.00414	0.00	7.02E+10	-1990.	84994.	0.00
8.0000	0.09345	5528357.	-14173.	-0.00376	0.00	7.02E+10	-2003.	102879.	0.00
8.4000	0.07633	5437252.	-23745.	-0.00338	0.00	7.02E+10	-1985.	124843.	0.00
8.8000	0.06099	5300407.	-32760.	-0.00301	0.00	7.02E+10	-1771.	139392.	0.00
9.2000	0.04740	5122753.	-40465.	-0.00266	0.00	7.03E+10	-1439.	145728.	0.00
9.6000	0.03548	4911945.	-46616.	-0.00232	0.00	7.04E+10	-1124.	152064.	0.00
10.0000	0.02517	4675242.	-51306.	-0.00199	0.00	7.04E+10	-830.5447	158400.	0.00

10.4000	0.01639	4419403.	-54650.	-0.00168	0.00	7.05E+10	-562.4178	164736.	0.00
10.8000	0.00905	4150606.	-56774.	-0.00139	0.00	7.06E+10	-322.5747	171072.	0.00
11.2000	0.00307	3874377.	-57820.	-0.00111	0.00	7.07E+10	-113.4298	177408.	0.00
11.6000	-0.00165	3595534.	-57941.	-8.61E-04	0.00	7.08E+10	63.1599	183744.	0.00
12.0000	-0.00520	3318147.	-57295.	-6.27E-04	0.00	7.08E+10	205.8466	190080.	0.00
12.4000	-0.00767	3045502.	-56048.	-4.11E-04	0.00	7.09E+10	313.7407	196416.	0.00
12.8000	-0.00915	2780086.	-54368.	-2.14E-04	0.00	7.10E+10	386.3603	202752.	0.00
13.2000	-0.00972	2523572.	-52424.	-9.71E-05	0.00	2.61E+11	423.5856	209088.	0.00
13.6000	-0.01008	2276817.	-50322.	-6.06E-05	0.00	4.10E+11	452.3449	215424.	0.00
14.0000	-0.01031	2040484.	-48093.	-3.54E-05	0.00	4.11E+11	476.1330	221760.	0.00
14.4000	-0.01042	1815121.	-45762.	-1.29E-05	0.00	4.12E+11	495.0830	228096.	0.00
14.8000	-0.01043	1601165.	-43352.	7.06E-06	0.00	4.12E+11	509.3667	234432.	0.00
15.2000	-0.01035	1398944.	-40883.	2.45E-05	0.00	4.13E+11	519.1885	240768.	0.00
15.6000	-0.01019	1208686.	-38378.	3.97E-05	0.00	4.13E+11	524.7815	247104.	0.00
16.0000	-0.00997	1030519.	-35855.	5.27E-05	0.00	4.14E+11	526.4016	253440.	0.00
16.4000	-0.00969	864480.	-33333.	6.37E-05	0.00	4.14E+11	524.3236	259776.	0.00
16.8000	-0.00936	710521.	-30829.	7.28E-05	0.00	4.14E+11	518.8354	266112.	0.00
17.2000	-0.00899	568517.	-28360.	8.02E-05	0.00	4.15E+11	510.2351	272448.	0.00
17.6000	-0.00859	438268.	-25938.	8.60E-05	0.00	4.15E+11	498.8265	278784.	0.00
18.0000	-0.00816	319512.	-23577.	9.04E-05	0.00	4.15E+11	484.9152	285120.	0.00
18.4000	-0.00772	211929.	-21288.	9.35E-05	0.00	4.16E+11	468.8060	291456.	0.00
18.8000	-0.00727	115147.	-19081.	9.54E-05	0.00	4.16E+11	450.7992	297792.	0.00
19.2000	-0.00681	28751.	-16964.	9.62E-05	0.00	4.16E+11	431.1882	304128.	0.00
19.6000	-0.00634	-47710.	-14945.	9.61E-05	0.00	4.16E+11	410.2573	310464.	0.00
20.0000	-0.00588	-114719.	-13028.	9.51E-05	0.00	4.16E+11	388.2800	316800.	0.00
20.4000	-0.00543	-172781.	-11219.	9.35E-05	0.00	4.16E+11	365.5166	323136.	0.00
20.8000	-0.00499	-222423.	-9521.	9.12E-05	0.00	4.16E+11	342.2133	329472.	0.00
21.2000	-0.00455	-264179.	-7935.	8.84E-05	0.00	4.16E+11	318.6004	335808.	0.00
21.6000	-0.00414	-298596.	-6462.	8.51E-05	0.00	4.16E+11	294.8917	342144.	0.00
22.0000	-0.00374	-326217.	-5103.	8.15E-05	0.00	4.15E+11	271.2842	348480.	0.00
22.4000	-0.00335	-347589.	-3857.	7.76E-05	0.00	4.15E+11	247.9570	354816.	0.00
22.8000	-0.00299	-363247.	-2722.	7.35E-05	0.00	4.15E+11	225.0710	361152.	0.00
23.2000	-0.00265	-373720.	-1695.	6.93E-05	0.00	4.15E+11	202.7693	367488.	0.00
23.6000	-0.00233	-379521.	-773.7305	6.49E-05	0.00	4.15E+11	181.1770	373824.	0.00
24.0000	-0.00203	-381148.	46.0590	6.05E-05	0.00	4.15E+11	160.4019	380160.	0.00
24.4000	-0.00175	-379079.	768.3063	5.61E-05	0.00	4.15E+11	140.5345	386496.	0.00
24.8000	-0.00149	-373772.	1398.	5.18E-05	0.00	4.15E+11	121.6492	392832.	0.00
25.2000	-0.00125	-365663.	1939.	4.75E-05	0.00	4.15E+11	103.8047	399168.	0.00
25.6000	-0.00103	-355161.	2397.	4.33E-05	0.00	4.15E+11	87.0450	405504.	0.00
26.0000	-8.32E-04	-342655.	2777.	3.93E-05	0.00	4.15E+11	71.4003	411840.	0.00
26.4000	-6.53E-04	-328503.	3085.	3.54E-05	0.00	4.15E+11	56.8882	418176.	0.00
26.8000	-4.92E-04	-313040.	3326.	3.17E-05	0.00	4.16E+11	43.5142	424512.	0.00
27.2000	-3.48E-04	-296575.	3505.	2.82E-05	0.00	4.16E+11	31.2732	430848.	0.00
27.6000	-2.21E-04	-279389.	3629.	2.49E-05	0.00	4.16E+11	20.1508	437184.	0.00
28.0000	-1.10E-04	-261739.	3701.	2.18E-05	0.00	4.16E+11	10.1236	443520.	0.00
28.4000	-1.24E-05	-243856.	3728.	1.88E-05	0.00	4.16E+11	1.1611	449856.	0.00
28.8000	7.13E-05	-225946.	3715.	1.61E-05	0.00	4.16E+11	-6.7737	456192.	0.00
29.2000	1.42E-04	-208192.	3666.	1.36E-05	0.00	4.16E+11	-13.7227	462528.	0.00
29.6000	2.02E-04	-190755.	3585.	1.13E-05	0.00	4.16E+11	-19.7325	468864.	0.00
30.0000	2.51E-04	-173772.	3478.	9.21E-06	0.00	4.16E+11	-24.8531	475200.	0.00
30.4000	2.90E-04	-157361.	3349.	7.30E-06	0.00	4.16E+11	-29.1371	481536.	0.00
30.8000	3.21E-04	-141622.	3201.	5.57E-06	0.00	4.16E+11	-32.6387	487872.	0.00

31.2000	3.44E-04	-126635.	3037.	4.03E-06	0.00	4.16E+11	-35.4132	494208.	0.00
31.6000	3.60E-04	-112464.	2862.	2.65E-06	0.00	4.16E+11	-37.5161	500544.	0.00
32.0000	3.69E-04	-99157.	2679.	1.42E-06	0.00	4.16E+11	-39.0027	506880.	0.00
32.4000	3.73E-04	-86749.	2489.	3.50E-07	0.00	4.16E+11	-39.9270	513216.	0.00
32.8000	3.73E-04	-75260.	2297.	-5.85E-07	0.00	4.16E+11	-40.3417	519552.	0.00
33.2000	3.68E-04	-64701.	2103.	-1.39E-06	0.00	4.16E+11	-40.2976	525888.	0.00
33.6000	3.59E-04	-55071.	1911.	-2.08E-06	0.00	4.16E+11	-39.8430	532224.	0.00
34.0000	3.48E-04	-46359.	1721.	-2.67E-06	0.00	4.16E+11	-39.0236	538560.	0.00
34.4000	3.34E-04	-38545.	1537.	-3.16E-06	0.00	4.16E+11	-37.8820	544896.	0.00
34.8000	3.17E-04	-31605.	1358.	-3.56E-06	0.00	4.16E+11	-36.4580	551232.	0.00
35.2000	2.99E-04	-25504.	1187.	-3.89E-06	0.00	4.16E+11	-34.7876	557568.	0.00
35.6000	2.80E-04	-20205.	1025.	-4.16E-06	0.00	4.16E+11	-32.9037	563904.	0.00
36.0000	2.60E-04	-15664.	872.0139	-4.37E-06	0.00	4.16E+11	-30.8356	570240.	0.00
36.4000	2.38E-04	-11834.	729.3469	-4.52E-06	0.00	4.16E+11	-28.6090	576576.	0.00
36.8000	2.16E-04	-8663.	597.6943	-4.64E-06	0.00	4.16E+11	-26.2463	582912.	0.00
37.2000	1.94E-04	-6096.	477.6638	-4.73E-06	0.00	4.16E+11	-23.7664	589248.	0.00
37.6000	1.71E-04	-4077.	369.7798	-4.79E-06	0.00	4.16E+11	-21.1852	595584.	0.00
38.0000	1.48E-04	-2546.	274.4986	-4.82E-06	0.00	4.16E+11	-18.5153	601920.	0.00
38.4000	1.24E-04	-1442.	192.2221	-4.85E-06	0.00	4.16E+11	-15.7666	608256.	0.00
38.8000	1.01E-04	-700.9315	123.3113	-4.86E-06	0.00	4.16E+11	-12.9463	614592.	0.00
39.2000	7.78E-05	-258.1781	68.0977	-4.87E-06	0.00	4.16E+11	-10.0594	620928.	0.00
39.6000	5.44E-05	-47.1931	26.8935	-4.87E-06	0.00	4.16E+11	-7.1090	627264.	0.00
40.0000	3.10E-05	0.00	0.00	-4.87E-06	0.00	4.16E+11	-4.0966	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 3:

```
Pile-head deflection             =     0.75000000 inches
Computed slope at pile head      =    -0.00833245 radians
Maximum bending moment           =       5573315. inch-lbs
Maximum shear force              =         93139. lbs
Depth of maximum bending moment  =     7.60000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             44
Number of zero deflection points =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 4

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.000000 inches

Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	0.00	105699.	-0.01063	0.00	4.16E+11	-35.0000	84.0000	0.00
0.4000	0.9490	506953.	105327.	-0.01063	0.00	4.16E+11	-120.1722	607.8471	0.00
0.8000	0.8980	1011138.	104533.	-0.01062	0.00	4.14E+11	-210.6585	1126.	0.00
1.2000	0.8470	1510469.	103293.	-0.01061	0.00	4.12E+11	-305.8069	1733.	0.00
1.6000	0.7961	2002754.	101587.	-0.01059	0.00	4.11E+11	-405.3731	2444.	0.00
2.0000	0.7454	2485699.	99391.	-0.01056	0.00	4.10E+11	-509.5211	3281.	0.00
2.4000	0.6948	2956905.	96682.	-0.01044	0.00	7.09E+10	-619.2723	4278.	0.00
2.8000	0.6451	3413843.	93429.	-0.01023	0.00	7.08E+10	-736.0492	5476.	0.00
3.2000	0.5966	3853822.	89594.	-0.00998	0.00	7.07E+10	-861.6545	6933.	0.00
3.6000	0.5493	4273949.	85132.	-0.00971	0.00	7.06E+10	-997.8471	8719.	0.00
4.0000	0.5034	4671085.	79984.	-0.00940	0.00	7.04E+10	-1147.	10937.	0.00
4.4000	0.4591	5041792.	74102.	-0.00907	0.00	7.03E+10	-1304.	13633.	0.00
4.8000	0.4163	5382460.	67504.	-0.00871	0.00	7.02E+10	-1445.	16661.	0.00
5.2000	0.3754	5689830.	60230.	-0.00834	0.00	7.01E+10	-1586.	20276.	0.00
5.6000	0.3363	5960666.	52295.	-0.00794	0.00	6.99E+10	-1720.	24551.	0.00
6.0000	0.2992	6191866.	43742.	-0.00752	0.00	6.94E+10	-1844.	29578.	0.00
6.4000	0.2642	6380585.	34619.	-0.00708	0.00	6.85E+10	-1957.	35563.	0.00
6.8000	0.2313	6524211.	24998.	-0.00662	0.00	6.78E+10	-2051.	42581.	0.00
7.2000	0.2006	6620571.	14983.	-0.00616	0.00	6.73E+10	-2122.	50774.	0.00
7.6000	0.1721	6668050.	4685.	-0.00568	0.00	6.71E+10	-2170.	60496.	0.00
8.0000	0.1460	6665542.	-5828.	-0.00521	0.00	6.71E+10	-2211.	72673.	0.00
8.4000	0.1222	6612104.	-16467.	-0.00473	0.00	6.74E+10	-2223.	87335.	0.00
8.8000	0.1006	6507456.	-27087.	-0.00427	0.00	6.79E+10	-2202.	105105.	0.00
9.2000	0.08119	6352070.	-37585.	-0.00381	0.00	6.86E+10	-2172.	128402.	0.00
9.6000	0.06395	6146642.	-47659.	-0.00338	0.00	6.95E+10	-2026.	152064.	0.00
10.0000	0.04874	5894539.	-56382.	-0.00297	0.00	7.01E+10	-1608.	158400.	0.00
10.4000	0.03547	5605377.	-63164.	-0.00257	0.00	7.01E+10	-1217.	164736.	0.00
10.8000	0.02404	5288166.	-68142.	-0.00220	0.00	7.02E+10	-856.9537	171072.	0.00
11.2000	0.01435	4951211.	-71472.	-0.00185	0.00	7.04E+10	-530.4433	177408.	0.00
11.6000	0.00628	4602034.	-73322.	-0.00152	0.00	7.05E+10	-240.4157	183744.	0.00
12.0000	-2.86E-04	4247319.	-73872.	-0.00122	0.00	7.06E+10	11.3273	190080.	0.00
12.4000	-0.00547	3892864.	-73308.	-9.47E-04	0.00	7.07E+10	223.6596	196416.	0.00
12.8000	-0.00938	3543562.	-71821.	-6.95E-04	0.00	7.08E+10	396.0588	202752.	0.00
13.2000	-0.01213	3203386.	-69602.	-4.66E-04	0.00	7.09E+10	528.5326	209088.	0.00
13.6000	-0.01385	2875386.	-66841.	-2.60E-04	0.00	7.10E+10	621.5483	215424.	0.00
14.0000	-0.01463	2561708.	-63727.	-8.48E-05	0.00	7.87E+10	675.9655	221760.	0.00
14.4000	-0.01466	2263603.	-60433.	6.61E-06	0.00	4.10E+11	696.7926	228096.	0.00
14.8000	-0.01457	1981553.	-57053.	3.14E-05	0.00	4.11E+11	711.4952	234432.	0.00
15.2000	-0.01436	1715896.	-53616.	5.30E-05	0.00	4.12E+11	720.3748	240768.	0.00
15.6000	-0.01406	1466836.	-50150.	7.15E-05	0.00	4.12E+11	723.7670	247104.	0.00
16.0000	-0.01367	1234451.	-46681.	8.72E-05	0.00	4.13E+11	722.0344	253440.	0.00
16.4000	-0.01322	1018703.	-43230.	1.00E-04	0.00	4.14E+11	715.5610	259776.	0.00
16.8000	-0.01271	819441.	-39822.	1.11E-04	0.00	4.14E+11	704.7458	266112.	0.00
17.2000	-0.01216	636416.	-36474.	1.19E-04	0.00	4.15E+11	689.9973	272448.	0.00
17.6000	-0.01157	469288.	-33206.	1.26E-04	0.00	4.15E+11	671.7285	278784.	0.00

18.0000	-0.01095	317638.	-30033.	1.30E-04	0.00	4.15E+11	650.3529	285120.	0.00
18.4000	-0.01031	180971.	-26969.	1.33E-04	0.00	4.16E+11	626.2792	291456.	0.00
18.8000	-0.00967	58734.	-24026.	1.35E-04	0.00	4.16E+11	599.9082	297792.	0.00
19.2000	-0.00902	-49681.	-21215.	1.35E-04	0.00	4.16E+11	571.6295	304128.	0.00
19.6000	-0.00838	-144926.	-18542.	1.34E-04	0.00	4.16E+11	541.8187	310464.	0.00
20.0000	-0.00774	-227687.	-16016.	1.31E-04	0.00	4.16E+11	510.8352	316800.	0.00
20.4000	-0.00712	-298679.	-13640.	1.28E-04	0.00	4.16E+11	479.0195	323136.	0.00
20.8000	-0.00651	-358634.	-11419.	1.25E-04	0.00	4.15E+11	446.6921	329472.	0.00
21.2000	-0.00592	-408298.	-9353.	1.20E-04	0.00	4.15E+11	414.1519	335808.	0.00
21.6000	-0.00535	-448419.	-7443.	1.15E-04	0.00	4.15E+11	381.6744	342144.	0.00
22.0000	-0.00481	-479746.	-5688.	1.10E-04	0.00	4.15E+11	349.5113	348480.	0.00
22.4000	-0.00430	-503021.	-4086.	1.04E-04	0.00	4.15E+11	317.8899	354816.	0.00
22.8000	-0.00381	-518972.	-2634.	9.82E-05	0.00	4.15E+11	287.0131	361152.	0.00
23.2000	-0.00336	-528309.	-1328.	9.22E-05	0.00	4.15E+11	257.0594	367488.	0.00
23.6000	-0.00293	-531724.	-163.8442	8.60E-05	0.00	4.15E+11	228.1833	373824.	0.00
24.0000	-0.00253	-529882.	865.0346	7.99E-05	0.00	4.15E+11	200.5162	380160.	0.00
24.4000	-0.00216	-523420.	1764.	7.38E-05	0.00	4.15E+11	174.1667	386496.	0.00
24.8000	-0.00182	-512945.	2540.	6.78E-05	0.00	4.15E+11	149.2216	392832.	0.00
25.2000	-0.00151	-499032.	3200.	6.20E-05	0.00	4.15E+11	125.7477	399168.	0.00
25.6000	-0.00123	-482222.	3751.	5.63E-05	0.00	4.15E+11	103.7924	405504.	0.00
26.0000	-9.72E-04	-463020.	4200.	5.08E-05	0.00	4.15E+11	83.3850	411840.	0.00
26.4000	-7.41E-04	-441898.	4555.	4.56E-05	0.00	4.15E+11	64.5385	418176.	0.00
26.8000	-5.34E-04	-419288.	4824.	4.06E-05	0.00	4.15E+11	47.2510	424512.	0.00
27.2000	-3.51E-04	-395590.	5013.	3.59E-05	0.00	4.15E+11	31.5065	430848.	0.00
27.6000	-1.90E-04	-371165.	5130.	3.15E-05	0.00	4.15E+11	17.2773	437184.	0.00
28.0000	-4.90E-05	-346343.	5182.	2.73E-05	0.00	4.15E+11	4.5247	443520.	0.00
28.4000	7.25E-05	-321416.	5177.	2.35E-05	0.00	4.15E+11	-6.7990	449856.	0.00
28.8000	1.76E-04	-296646.	5120.	1.99E-05	0.00	4.16E+11	-16.7495	456192.	0.00
29.2000	2.63E-04	-272262.	5019.	1.66E-05	0.00	4.16E+11	-25.3890	462528.	0.00
29.6000	3.36E-04	-248463.	4879.	1.36E-05	0.00	4.16E+11	-32.7848	468864.	0.00
30.0000	3.94E-04	-225419.	4707.	1.09E-05	0.00	4.16E+11	-39.0079	475200.	0.00
30.4000	4.40E-04	-203274.	4508.	8.39E-06	0.00	4.16E+11	-44.1319	481536.	0.00
30.8000	4.75E-04	-182146.	4286.	6.16E-06	0.00	4.16E+11	-48.2321	487872.	0.00
31.2000	4.99E-04	-162129.	4047.	4.18E-06	0.00	4.16E+11	-51.3843	494208.	0.00
31.6000	5.15E-04	-143296.	3795.	2.41E-06	0.00	4.16E+11	-53.6644	500544.	0.00
32.0000	5.22E-04	-125699.	3534.	8.59E-07	0.00	4.16E+11	-55.1470	506880.	0.00
32.4000	5.23E-04	-109373.	3267.	-4.98E-07	0.00	4.16E+11	-55.9048	513216.	0.00
32.8000	5.17E-04	-94335.	2998.	-1.67E-06	0.00	4.16E+11	-56.0083	519552.	0.00
33.2000	5.07E-04	-80588.	2731.	-2.68E-06	0.00	4.16E+11	-55.5246	525888.	0.00
33.6000	4.92E-04	-68120.	2467.	-3.54E-06	0.00	4.16E+11	-54.5177	532224.	0.00
34.0000	4.73E-04	-56907.	2209.	-4.26E-06	0.00	4.16E+11	-53.0473	538560.	0.00
34.4000	4.51E-04	-46917.	1958.	-4.86E-06	0.00	4.16E+11	-51.1690	544896.	0.00
34.8000	4.26E-04	-38106.	1718.	-5.35E-06	0.00	4.16E+11	-48.9339	551232.	0.00
35.2000	3.99E-04	-30423.	1489.	-5.75E-06	0.00	4.16E+11	-46.3885	557568.	0.00
35.6000	3.71E-04	-23808.	1274.	-6.06E-06	0.00	4.16E+11	-43.5743	563904.	0.00
36.0000	3.41E-04	-18197.	1072.	-6.31E-06	0.00	4.16E+11	-40.5283	570240.	0.00
36.4000	3.10E-04	-13520.	884.9141	-6.49E-06	0.00	4.16E+11	-37.2827	576576.	0.00
36.8000	2.79E-04	-9702.	714.1602	-6.62E-06	0.00	4.16E+11	-33.8648	582912.	0.00
37.2000	2.47E-04	-6664.	560.1704	-6.72E-06	0.00	4.16E+11	-30.2977	589248.	0.00
37.6000	2.14E-04	-4324.	423.6158	-6.78E-06	0.00	4.16E+11	-26.6001	595584.	0.00
38.0000	1.82E-04	-2597.	305.0870	-6.82E-06	0.00	4.16E+11	-22.7869	601920.	0.00
38.4000	1.49E-04	-1396.	205.1124	-6.84E-06	0.00	4.16E+11	-18.8692	608256.	0.00

38.8000	1.16E-04	-628.3508	124.1745	-6.85E-06	0.00	4.16E+11	-14.8550	614592.	0.00
39.2000	8.31E-05	-203.4428	62.7239	-6.86E-06	0.00	4.16E+11	-10.7494	620928.	0.00
39.6000	5.02E-05	-26.2018	21.1920	-6.86E-06	0.00	4.16E+11	-6.5555	627264.	0.00
40.0000	1.72E-05	0.00	0.00	-6.86E-06	0.00	4.16E+11	-2.2745	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 4:

```
Pile-head deflection               =     1.00000000 inches
Computed slope at pile head        =    -0.01063191 radians
Maximum bending moment             =       6668050. inch-lbs
Maximum shear force                =        105699. lbs
Depth of maximum bending moment    =     7.60000000 feet below pile head
Depth of maximum shear force       =       0.000000 feet below pile head
Number of iterations               =             52
Number of zero deflection points   =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 5

Pile-head conditions are Displacement and Moment (Loading Type 4)

```
Displacement of pile head                        =     1.250000 inches
Moment at pile head                              =          0.0 in-lbs
Axial load at pile head                          =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	0.00	113958.	-0.01312	0.00	4.16E+11	-10.0000	19.2000	0.00
0.4000	1.1870	546885.	113680.	-0.01312	0.00	4.16E+11	-105.7896	427.7808	0.00
0.8000	1.1241	1091332.	112932.	-0.01311	0.00	4.13E+11	-206.0839	879.9985	0.00
1.2000	1.0612	1631032.	111694.	-0.01309	0.00	4.12E+11	-309.7206	1401.	0.00
1.6000	0.9984	2163595.	109952.	-0.01307	0.00	4.11E+11	-415.9907	2000.	0.00
2.0000	0.9358	2686574.	107695.	-0.01296	0.00	7.10E+10	-524.5568	2691.	0.00
2.4000	0.8740	3197467.	104909.	-0.01277	0.00	7.09E+10	-636.4730	3496.	0.00
2.8000	0.8132	3693696.	101574.	-0.01253	0.00	7.07E+10	-753.0438	4445.	0.00
3.2000	0.7537	4172574.	97663.	-0.01226	0.00	7.06E+10	-876.3439	5581.	0.00
3.6000	0.6955	4631262.	93140.	-0.01196	0.00	7.04E+10	-1008.	6960.	0.00
4.0000	0.6388	5066714.	87955.	-0.01163	0.00	7.03E+10	-1152.	8654.	0.00
4.4000	0.5838	5475631.	82052.	-0.01127	0.00	7.02E+10	-1308.	10752.	0.00

4.8000	0.5306	5854418.	75419.	-0.01089	0.00	7.01E+10	-1456.	13173.	0.00
5.2000	0.4793	6199657.	68071.	-0.01047	0.00	6.94E+10	-1606.	16081.	0.00
5.6000	0.4301	6507899.	60012.	-0.01003	0.00	6.79E+10	-1752.	19555.	0.00
6.0000	0.3830	6775773.	51271.	-0.00955	0.00	6.66E+10	-1890.	23685.	0.00
6.4000	0.3384	7000099.	41890.	-0.00905	0.00	6.42E+10	-2018.	28632.	0.00
6.8000	0.2962	7177921.	31937.	-0.00849	0.00	5.92E+10	-2129.	34501.	0.00
7.2000	0.2568	7306691.	21508.	-0.00789	0.00	5.60E+10	-2216.	41422.	0.00
7.6000	0.2205	7384394.	10714.	-0.00725	0.00	5.43E+10	-2281.	49658.	0.00
8.0000	0.1872	7409546.	-364.7411	-0.00659	0.00	5.38E+10	-2335.	59865.	0.00
8.4000	0.1572	7380893.	-11636.	-0.00594	0.00	5.44E+10	-2361.	72102.	0.00
8.8000	0.1303	7297839.	-22955.	-0.00530	0.00	5.62E+10	-2355.	86783.	0.00
9.2000	0.1063	7160524.	-34219.	-0.00470	0.00	5.96E+10	-2338.	105564.	0.00
9.6000	0.08515	6969336.	-45389.	-0.00415	0.00	6.47E+10	-2316.	130541.	0.00
10.0000	0.06647	6724791.	-56211.	-0.00365	0.00	6.68E+10	-2193.	158400.	0.00
10.4000	0.05010	6429710.	-65602.	-0.00318	0.00	6.82E+10	-1719.	164736.	0.00
10.8000	0.03590	6095015.	-72799.	-0.00275	0.00	6.96E+10	-1280.	171072.	0.00
11.2000	0.02372	5730841.	-77974.	-0.00234	0.00	7.01E+10	-876.7199	177408.	0.00
11.6000	0.01342	5346466.	-81311.	-0.00196	0.00	7.02E+10	-513.8744	183744.	0.00
12.0000	0.00488	4950252.	-83009.	-0.00161	0.00	7.04E+10	-193.3085	190080.	0.00
12.4000	-0.00204	4549584.	-83272.	-0.00129	0.00	7.05E+10	83.4698	196416.	0.00
12.8000	-0.00747	4150839.	-82314.	-9.91E-04	0.00	7.06E+10	315.6936	202752.	0.00
13.2000	-0.01155	3759368.	-80349.	-7.22E-04	0.00	7.07E+10	503.2523	209088.	0.00
13.6000	-0.01441	3379491.	-77589.	-4.80E-04	0.00	7.08E+10	646.6061	215424.	0.00
14.0000	-0.01616	3014513.	-74245.	-2.64E-04	0.00	7.09E+10	746.7027	221760.	0.00
14.4000	-0.01694	2666738.	-70521.	-7.15E-05	0.00	7.10E+10	804.8997	228096.	0.00
14.8000	-0.01685	2337509.	-66615.	3.23E-05	0.00	4.10E+11	822.8959	234432.	0.00
15.2000	-0.01663	2027238.	-62638.	5.78E-05	0.00	4.11E+11	834.0684	240768.	0.00
15.6000	-0.01629	1736185.	-58623.	7.98E-05	0.00	4.12E+11	838.8068	247104.	0.00
16.0000	-0.01586	1464458.	-54600.	9.84E-05	0.00	4.12E+11	837.5326	253440.	0.00
16.4000	-0.01535	1212028.	-50596.	1.14E-04	0.00	4.13E+11	830.6919	259776.	0.00
16.8000	-0.01477	978737.	-46637.	1.27E-04	0.00	4.14E+11	818.7487	266112.	0.00
17.2000	-0.01413	764310.	-42747.	1.37E-04	0.00	4.14E+11	802.1786	272448.	0.00
17.6000	-0.01345	568365.	-38946.	1.45E-04	0.00	4.15E+11	781.4629	278784.	0.00
18.0000	-0.01275	390424.	-35254.	1.50E-04	0.00	4.15E+11	757.0826	285120.	0.00
18.4000	-0.01201	229927.	-31686.	1.54E-04	0.00	4.16E+11	729.5142	291456.	0.00
18.8000	-0.01127	86239.	-28257.	1.55E-04	0.00	4.16E+11	699.2251	297792.	0.00
19.2000	-0.01052	-41340.	-24979.	1.56E-04	0.00	4.16E+11	666.6695	304128.	0.00
19.6000	-0.00978	-153559.	-21861.	1.55E-04	0.00	4.16E+11	632.2857	310464.	0.00
20.0000	-0.00904	-251210.	-18912.	1.52E-04	0.00	4.16E+11	596.4932	316800.	0.00
20.4000	-0.00831	-335117.	-16138.	1.49E-04	0.00	4.15E+11	559.6901	323136.	0.00
20.8000	-0.00761	-406130.	-13541.	1.45E-04	0.00	4.15E+11	522.2516	329472.	0.00
21.2000	-0.00693	-465109.	-11125.	1.40E-04	0.00	4.15E+11	484.5275	335808.	0.00
21.6000	-0.00627	-512926.	-8889.	1.34E-04	0.00	4.15E+11	446.8410	342144.	0.00
22.0000	-0.00564	-550447.	-6834.	1.28E-04	0.00	4.15E+11	409.4872	348480.	0.00
22.4000	-0.00504	-578533.	-4957.	1.21E-04	0.00	4.15E+11	372.7335	354816.	0.00
22.8000	-0.00448	-598032.	-3254.	1.14E-04	0.00	4.15E+11	336.8189	361152.	0.00
23.2000	-0.00394	-609770.	-1721.	1.07E-04	0.00	4.15E+11	301.9540	367488.	0.00
23.6000	-0.00345	-614551.	-352.1300	1.00E-04	0.00	4.15E+11	268.3212	373824.	0.00
24.0000	-0.00298	-613150.	858.4229	9.32E-05	0.00	4.15E+11	236.0759	380160.	0.00
24.4000	-0.00255	-606310.	1918.	8.62E-05	0.00	4.15E+11	205.3469	386496.	0.00
24.8000	-0.00215	-594739.	2834.	7.92E-05	0.00	4.15E+11	176.2379	392832.	0.00
25.2000	-0.00179	-579107.	3614.	7.24E-05	0.00	4.15E+11	148.8287	399168.	0.00

25.6000	-0.00146	-560047.	4267.	6.58E-05	0.00	4.15E+11	123.1763	405504.	0.00
26.0000	-0.00116	-538148.	4801.	5.95E-05	0.00	4.15E+11	99.3169	411840.	0.00
26.4000	-8.87E-04	-513961.	5224.	5.34E-05	0.00	4.15E+11	77.2672	418176.	0.00
26.8000	-6.45E-04	-487994.	5547.	4.76E-05	0.00	4.15E+11	57.0263	424512.	0.00
27.2000	-4.30E-04	-460713.	5776.	4.21E-05	0.00	4.15E+11	38.5774	430848.	0.00
27.6000	-2.40E-04	-432543.	5921.	3.70E-05	0.00	4.15E+11	21.8898	437184.	0.00
28.0000	-7.49E-05	-403868.	5990.	3.21E-05	0.00	4.15E+11	6.9200	443520.	0.00
28.4000	6.81E-05	-375035.	5992.	2.76E-05	0.00	4.15E+11	-6.3866	449856.	0.00
28.8000	1.90E-04	-346348.	5933.	2.35E-05	0.00	4.15E+11	-18.0933	456192.	0.00
29.2000	2.93E-04	-318078.	5822.	1.96E-05	0.00	4.15E+11	-28.2717	462528.	0.00
29.6000	3.79E-04	-290460.	5665.	1.61E-05	0.00	4.16E+11	-36.9992	468864.	0.00
30.0000	4.48E-04	-263694.	5470.	1.29E-05	0.00	4.16E+11	-44.3579	475200.	0.00
30.4000	5.03E-04	-237950.	5242.	1.00E-05	0.00	4.16E+11	-50.4334	481536.	0.00
30.8000	5.44E-04	-213368.	4988.	7.41E-06	0.00	4.16E+11	-55.3130	487872.	0.00
31.2000	5.74E-04	-190061.	4714.	5.08E-06	0.00	4.16E+11	-59.0846	494208.	0.00
31.6000	5.93E-04	-168115.	4424.	3.01E-06	0.00	4.16E+11	-61.8361	500544.	0.00
32.0000	6.03E-04	-147593.	4123.	1.19E-06	0.00	4.16E+11	-63.6542	506880.	0.00
32.4000	6.04E-04	-128539.	3815.	-4.03E-07	0.00	4.16E+11	-64.6237	513216.	0.00
32.8000	5.99E-04	-110973.	3504.	-1.79E-06	0.00	4.16E+11	-64.8265	519552.	0.00
33.2000	5.87E-04	-94900.	3194.	-2.97E-06	0.00	4.16E+11	-64.3410	525888.	0.00
33.6000	5.70E-04	-80310.	2888.	-3.99E-06	0.00	4.16E+11	-63.2415	532224.	0.00
34.0000	5.49E-04	-67178.	2588.	-4.84E-06	0.00	4.16E+11	-61.5981	538560.	0.00
34.4000	5.24E-04	-55464.	2298.	-5.55E-06	0.00	4.16E+11	-59.4757	544896.	0.00
34.8000	4.96E-04	-45121.	2018.	-6.13E-06	0.00	4.16E+11	-56.9341	551232.	0.00
35.2000	4.65E-04	-36089.	1752.	-6.59E-06	0.00	4.16E+11	-54.0277	557568.	0.00
35.6000	4.32E-04	-28303.	1500.	-6.97E-06	0.00	4.16E+11	-50.8054	563904.	0.00
36.0000	3.98E-04	-21686.	1265.	-7.25E-06	0.00	4.16E+11	-47.3105	570240.	0.00
36.4000	3.63E-04	-16160.	1047.	-7.47E-06	0.00	4.16E+11	-43.5810	576576.	0.00
36.8000	3.26E-04	-11638.	846.9304	-7.63E-06	0.00	4.16E+11	-39.6491	582912.	0.00
37.2000	2.90E-04	-8030.	666.4712	-7.75E-06	0.00	4.16E+11	-35.5422	589248.	0.00
37.6000	2.52E-04	-5240.	506.0918	-7.82E-06	0.00	4.16E+11	-31.2825	595584.	0.00
38.0000	2.14E-04	-3171.	366.4834	-7.87E-06	0.00	4.16E+11	-26.8877	601920.	0.00
38.4000	1.77E-04	-1722.	248.2627	-7.90E-06	0.00	4.16E+11	-22.3710	608256.	0.00
38.8000	1.39E-04	-787.8899	151.9913	-7.92E-06	0.00	4.16E+11	-17.7421	614592.	0.00
39.2000	1.01E-04	-262.7203	78.1928	-7.92E-06	0.00	4.16E+11	-13.0073	620928.	0.00
39.6000	6.25E-05	-37.2388	27.3667	-7.92E-06	0.00	4.16E+11	-8.1703	627264.	0.00
40.0000	2.45E-05	0.00	0.00	-7.92E-06	0.00	4.16E+11	-3.2325	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 5:

```
Pile-head deflection            =     1.25000000 inches
Computed slope at pile head     =    -0.01311818 radians
Maximum bending moment          =       7409546. inch-lbs
Maximum shear force             =        113958. lbs
```

Depth of maximum bending moment =   8.00000000 feet below pile head
Depth of maximum shear force   =   0.000000 feet below pile head
Number of iterations   =   24
Number of zero deflection points =   3

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 6

Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head = 1.500000 inches
Moment at pile head = 0.0 in-lbs
Axial load at pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	0.00	119531.	-0.01553	0.00	4.16E+11	0.00	0.00	0.00
0.4000	1.4255	573750.	119301.	-0.01553	0.00	4.16E+11	-95.9440	323.0764	0.00
0.8000	1.3509	1145290.	118587.	-0.01552	0.00	4.13E+11	-201.5141	715.9938	0.00
1.2000	1.2765	1712186.	117351.	-0.01550	0.00	4.12E+11	-313.6542	1179.	0.00
1.6000	1.2021	2271856.	115574.	-0.01548	0.00	4.10E+11	-426.6837	1704.	0.00
2.0000	1.1279	2821695.	113254.	-0.01537	0.00	7.10E+10	-539.7337	2297.	0.00
2.4000	1.0546	3359099.	110390.	-0.01516	0.00	7.08E+10	-653.8135	2976.	0.00
2.8000	0.9824	3881439.	106972.	-0.01491	0.00	7.07E+10	-770.1496	3763.	0.00
3.2000	0.9114	4386035.	102985.	-0.01463	0.00	7.05E+10	-891.1002	4693.	0.00
3.6000	0.8419	4870099.	98401.	-0.01432	0.00	7.04E+10	-1019.	5809.	0.00
4.0000	0.7740	5330687.	93181.	-0.01397	0.00	7.02E+10	-1156.	7169.	0.00
4.4000	0.7078	5764639.	87274.	-0.01359	0.00	7.01E+10	-1305.	8851.	0.00
4.8000	0.6435	6168518.	80642.	-0.01318	0.00	6.95E+10	-1458.	10877.	0.00
5.2000	0.5813	6538797.	73249.	-0.01273	0.00	6.77E+10	-1622.	13391.	0.00
5.6000	0.5213	6871711.	65091.	-0.01225	0.00	6.61E+10	-1777.	16366.	0.00
6.0000	0.4637	7163673.	56201.	-0.01171	0.00	5.95E+10	-1927.	19945.	0.00
6.4000	0.4088	7411242.	46617.	-0.01109	0.00	5.37E+10	-2066.	24261.	0.00
6.8000	0.3572	7611200.	36403.	-0.01040	0.00	4.99E+10	-2190.	29426.	0.00
7.2000	0.3090	7760708.	25651.	-0.00964	0.00	4.75E+10	-2290.	35572.	0.00
7.6000	0.2646	7857451.	14475.	-0.00884	0.00	4.61E+10	-2367.	42928.	0.00
8.0000	0.2242	7899664.	2962.	-0.00801	0.00	4.55E+10	-2430.	52030.	0.00
8.4000	0.1877	7885890.	-8783.	-0.00718	0.00	4.57E+10	-2464.	63003.	0.00
8.8000	0.1552	7815349.	-20612.	-0.00637	0.00	4.67E+10	-2465.	76216.	0.00
9.2000	0.1266	7688019.	-32414.	-0.00559	0.00	4.87E+10	-2453.	92996.	0.00
9.6000	0.1016	7504178.	-44143.	-0.00486	0.00	5.19E+10	-2434.	114993.	0.00
10.0000	0.07996	7264250.	-55713.	-0.00421	0.00	5.70E+10	-2387.	143269.	0.00
10.4000	0.06124	6969336.	-66485.	-0.00364	0.00	6.47E+10	-2102.	164736.	0.00
10.8000	0.04500	6625998.	-75378.	-0.00315	0.00	6.73E+10	-1604.	171072.	0.00
11.2000	0.03104	6245706.	-81981.	-0.00269	0.00	6.92E+10	-1147.	177408.	0.00
11.6000	0.01915	5838984.	-86493.	-0.00228	0.00	7.01E+10	-733.0757	183744.	0.00
12.0000	0.00918	5415372.	-89125.	-0.00189	0.00	7.02E+10	-363.6830	190080.	0.00

12.4000	9.95E-04	4983380.	-90096.	-0.00154	0.00	7.03E+10	-40.7049	196416.	0.00
12.8000	-0.00556	4550451.	-89630.	-0.00121	0.00	7.05E+10	234.9444	202752.	0.00
13.2000	-0.01063	4122935.	-87954.	-9.16E-04	0.00	7.06E+10	463.1010	209088.	0.00
13.6000	-0.01436	3706089.	-85297.	-6.50E-04	0.00	7.07E+10	644.2573	215424.	0.00
14.0000	-0.01687	3304086.	-81880.	-4.12E-04	0.00	7.08E+10	779.4676	221760.	0.00
14.4000	-0.01831	2920043.	-77920.	-2.02E-04	0.00	7.10E+10	870.2591	228096.	0.00
14.8000	-0.01881	2556050.	-73627.	-2.37E-05	0.00	7.75E+10	918.5485	234432.	0.00
15.2000	-0.01854	2213221.	-69191.	6.84E-05	0.00	4.10E+11	930.0226	240768.	0.00
15.6000	-0.01815	1891819.	-64716.	9.24E-05	0.00	4.11E+11	934.3975	247104.	0.00
16.0000	-0.01765	1591946.	-60236.	1.13E-04	0.00	4.12E+11	932.1459	253440.	0.00
16.4000	-0.01707	1313549.	-55782.	1.30E-04	0.00	4.13E+11	923.7670	259776.	0.00
16.8000	-0.01641	1056436.	-51382.	1.43E-04	0.00	4.14E+11	909.7788	266112.	0.00
17.2000	-0.01569	820284.	-47061.	1.54E-04	0.00	4.14E+11	890.7111	272448.	0.00
17.6000	-0.01493	604655.	-42842.	1.62E-04	0.00	4.15E+11	867.0990	278784.	0.00
18.0000	-0.01413	409003.	-38746.	1.68E-04	0.00	4.15E+11	839.4767	285120.	0.00
18.4000	-0.01331	232693.	-34791.	1.72E-04	0.00	4.16E+11	808.3730	291456.	0.00
18.8000	-0.01248	75008.	-30993.	1.74E-04	0.00	4.16E+11	774.3058	297792.	0.00
19.2000	-0.01164	-64838.	-27364.	1.74E-04	0.00	4.16E+11	737.7778	304128.	0.00
19.6000	-0.01081	-187685.	-23915.	1.72E-04	0.00	4.16E+11	699.2738	310464.	0.00
20.0000	-0.00999	-294420.	-20654.	1.70E-04	0.00	4.16E+11	659.2572	316800.	0.00
20.4000	-0.00918	-385967.	-17589.	1.66E-04	0.00	4.15E+11	618.1680	323136.	0.00
20.8000	-0.00840	-463270.	-14722.	1.61E-04	0.00	4.15E+11	576.4202	329472.	0.00
21.2000	-0.00764	-527293.	-12056.	1.55E-04	0.00	4.15E+11	534.3994	335808.	0.00
21.6000	-0.00691	-579004.	-9591.	1.49E-04	0.00	4.15E+11	492.4611	342144.	0.00
22.0000	-0.00621	-619368.	-7327.	1.42E-04	0.00	4.15E+11	450.9308	348480.	0.00
22.4000	-0.00555	-649343.	-5260.	1.34E-04	0.00	4.15E+11	410.1024	354816.	0.00
22.8000	-0.00492	-669869.	-3388.	1.27E-04	0.00	4.15E+11	370.2378	361152.	0.00
23.2000	-0.00433	-681864.	-1703.	1.19E-04	0.00	4.15E+11	331.5677	367488.	0.00
23.6000	-0.00378	-686220.	-201.2701	1.11E-04	0.00	4.15E+11	294.2916	373824.	0.00
24.0000	-0.00326	-683796.	1126.	1.03E-04	0.00	4.15E+11	258.5789	380160.	0.00
24.4000	-0.00279	-675415.	2285.	9.52E-05	0.00	4.15E+11	224.5696	386496.	0.00
24.8000	-0.00235	-661859.	3286.	8.75E-05	0.00	4.15E+11	192.3761	392832.	0.00
25.2000	-0.00195	-643870.	4137.	7.99E-05	0.00	4.15E+11	162.0840	399168.	0.00
25.6000	-0.00158	-622148.	4847.	7.26E-05	0.00	4.15E+11	133.7543	405504.	0.00
26.0000	-0.00125	-597343.	5425.	6.56E-05	0.00	4.15E+11	107.4245	411840.	0.00
26.4000	-9.54E-04	-570064.	5883.	5.88E-05	0.00	4.15E+11	83.1112	418176.	0.00
26.8000	-6.88E-04	-540870.	6228.	5.24E-05	0.00	4.15E+11	60.8109	424512.	0.00
27.2000	-4.51E-04	-510274.	6471.	4.63E-05	0.00	4.15E+11	40.5029	430848.	0.00
27.6000	-2.43E-04	-478746.	6622.	4.06E-05	0.00	4.15E+11	22.1508	437184.	0.00
28.0000	-6.17E-05	-446707.	6688.	3.52E-05	0.00	4.15E+11	5.7048	443520.	0.00
28.4000	9.49E-05	-414537.	6681.	3.02E-05	0.00	4.15E+11	-8.8969	449856.	0.00
28.8000	2.29E-04	-382571.	6607.	2.56E-05	0.00	4.15E+11	-21.7261	456192.	0.00
29.2000	3.41E-04	-351106.	6476.	2.14E-05	0.00	4.15E+11	-32.8630	462528.	0.00
29.6000	4.34E-04	-320399.	6296.	1.75E-05	0.00	4.15E+11	-42.3945	468864.	0.00
30.0000	5.09E-04	-290668.	6073.	1.40E-05	0.00	4.16E+11	-50.4124	475200.	0.00
30.4000	5.68E-04	-262099.	5815.	1.08E-05	0.00	4.16E+11	-57.0124	481536.	0.00
30.8000	6.13E-04	-234843.	5529.	7.93E-06	0.00	4.16E+11	-62.2919	487872.	0.00
31.2000	6.44E-04	-209022.	5220.	5.37E-06	0.00	4.16E+11	-66.3492	494208.	0.00
31.6000	6.64E-04	-184730.	4895.	3.09E-06	0.00	4.16E+11	-69.2817	500544.	0.00
32.0000	6.74E-04	-162035.	4557.	1.09E-06	0.00	4.16E+11	-71.1859	506880.	0.00
32.4000	6.75E-04	-140979.	4213.	-6.58E-07	0.00	4.16E+11	-72.1557	513216.	0.00
32.8000	6.68E-04	-121586.	3867.	-2.17E-06	0.00	4.16E+11	-72.2818	519552.	0.00

33.2000	6.54E-04	-103858.	3521.	-3.48E-06	0.00	4.16E+11	-71.6510	525888.	0.00
33.6000	6.34E-04	-87781.	3181.	-4.58E-06	0.00	4.16E+11	-70.3456	532224.	0.00
34.0000	6.10E-04	-73325.	2847.	-5.51E-06	0.00	4.16E+11	-68.4427	538560.	0.00
34.4000	5.82E-04	-60446.	2525.	-6.28E-06	0.00	4.16E+11	-66.0141	544896.	0.00
34.8000	5.50E-04	-49088.	2215.	-6.92E-06	0.00	4.16E+11	-63.1256	551232.	0.00
35.2000	5.15E-04	-39184.	1920.	-7.43E-06	0.00	4.16E+11	-59.8370	557568.	0.00
35.6000	4.78E-04	-30659.	1641.	-7.83E-06	0.00	4.16E+11	-56.2021	563904.	0.00
36.0000	4.40E-04	-23429.	1381.	-8.14E-06	0.00	4.16E+11	-52.2683	570240.	0.00
36.4000	4.00E-04	-17403.	1140.	-8.38E-06	0.00	4.16E+11	-48.0772	576576.	0.00
36.8000	3.60E-04	-12485.	919.8506	-8.55E-06	0.00	4.16E+11	-43.6640	582912.	0.00
37.2000	3.18E-04	-8572.	721.3164	-8.67E-06	0.00	4.16E+11	-39.0585	589248.	0.00
37.6000	2.76E-04	-5560.	545.2924	-8.75E-06	0.00	4.16E+11	-34.2848	595584.	0.00
38.0000	2.34E-04	-3337.	392.5401	-8.80E-06	0.00	4.16E+11	-29.3620	601920.	0.00
38.4000	1.92E-04	-1791.	263.7408	-8.83E-06	0.00	4.16E+11	-24.3044	608256.	0.00
38.8000	1.49E-04	-805.5158	159.5168	-8.85E-06	0.00	4.16E+11	-19.1223	614592.	0.00
39.2000	1.07E-04	-260.1240	80.4497	-8.85E-06	0.00	4.16E+11	-13.8223	620928.	0.00
39.6000	6.43E-05	-33.1984	27.0962	-8.86E-06	0.00	4.16E+11	-8.4083	627264.	0.00
40.0000	2.18E-05	0.00	0.00	-8.86E-06	0.00	4.16E+11	-2.8818	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 6:

```
Pile-head deflection              =     1.50000000 inches
Computed slope at pile head       =    -0.01552995 radians
Maximum bending moment            =       7899664. inch-lbs
Maximum shear force               =        119531. lbs
Depth of maximum bending moment   =     8.00000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             23
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 7

Pile-head conditions are Displacement and Moment (Loading Type 4)

```
Displacement of pile head                            =    1.750000 inches
Moment at pile head                                  =         0.0 in-lbs
Axial load at pile head                              =         0.0 lbs
```

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. p	Soil Spr. Es*h	Distrib. Lat. Load

feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	lb/inch	lb/inch	lb/inch
0.00	1.7500	0.00	124001.	-0.01797	0.00	4.16E+11	0.00	0.00	0.00
0.4000	1.6638	595205.	123771.	-0.01797	0.00	4.16E+11	-95.9440	276.8031	0.00
0.8000	1.5775	1188200.	123057.	-0.01795	0.00	4.13E+11	-201.5142	613.1520	0.00
1.2000	1.4914	1776551.	121817.	-0.01794	0.00	4.12E+11	-314.9976	1014.	0.00
1.6000	1.4053	2357645.	120019.	-0.01791	0.00	4.10E+11	-434.4455	1484.	0.00
2.0000	1.3194	2928730.	117644.	-0.01780	0.00	7.10E+10	-554.8605	2019.	0.00
2.4000	1.2344	3487030.	114702.	-0.01758	0.00	7.08E+10	-671.0798	2609.	0.00
2.8000	1.1506	4029869.	111202.	-0.01733	0.00	7.06E+10	-787.1629	3284.	0.00
3.2000	1.0681	4554571.	107139.	-0.01704	0.00	7.05E+10	-905.7571	4070.	0.00
3.6000	0.9871	5058405.	102495.	-0.01671	0.00	7.03E+10	-1029.	5006.	0.00
4.0000	0.9077	5538522.	97239.	-0.01635	0.00	7.02E+10	-1160.	6136.	0.00
4.4000	0.8301	5991904.	91330.	-0.01595	0.00	6.99E+10	-1302.	7528.	0.00
4.8000	0.7546	6415290.	84726.	-0.01552	0.00	6.83E+10	-1450.	9224.	0.00
5.2000	0.6812	6805269.	77374.	-0.01505	0.00	6.64E+10	-1613.	11367.	0.00
5.6000	0.6101	7158082.	69197.	-0.01451	0.00	5.97E+10	-1794.	14114.	0.00
6.0000	0.5418	7469562.	60194.	-0.01389	0.00	5.25E+10	-1957.	17338.	0.00
6.4000	0.4768	7735949.	50442.	-0.01316	0.00	4.79E+10	-2106.	21205.	0.00
6.8000	0.4155	7953805.	40011.	-0.01234	0.00	4.48E+10	-2240.	25876.	0.00
7.2000	0.3583	8120052.	28992.	-0.01146	0.00	4.27E+10	-2351.	31493.	0.00
7.6000	0.3055	8232133.	17502.	-0.01051	0.00	4.04E+10	-2437.	38282.	0.00
8.0000	0.2574	8288075.	5642.	-0.00948	0.00	3.69E+10	-2505.	46719.	0.00
8.4000	0.2145	8286296.	-6476.	-0.00841	0.00	3.70E+10	-2544.	56937.	0.00
8.8000	0.1767	8225905.	-18699.	-0.00738	0.00	4.06E+10	-2549.	69253.	0.00
9.2000	0.1436	8106785.	-30910.	-0.00644	0.00	4.28E+10	-2539.	84881.	0.00
9.6000	0.1148	7929172.	-43050.	-0.00557	0.00	4.51E+10	-2520.	105343.	0.00
10.0000	0.09012	7693504.	-55028.	-0.00477	0.00	4.86E+10	-2471.	131624.	0.00
10.4000	0.06907	7400899.	-66649.	-0.00406	0.00	5.39E+10	-2371.	164736.	0.00
10.8000	0.05119	7053677.	-76716.	-0.00346	0.00	6.26E+10	-1824.	171072.	0.00
11.2000	0.03590	6664425.	-84278.	-0.00295	0.00	6.71E+10	-1327.	177408.	0.00
11.6000	0.02290	6244604.	-89566.	-0.00249	0.00	6.92E+10	-876.4300	183744.	0.00
12.0000	0.01197	5804590.	-92808.	-0.00208	0.00	7.01E+10	-474.1585	190080.	0.00
12.4000	0.00296	5353652.	-94236.	-0.00169	0.00	7.02E+10	-121.1455	196416.	0.00
12.8000	-0.00430	4899922.	-94091.	-0.00134	0.00	7.04E+10	181.4666	202752.	0.00
13.2000	-0.00995	4450373.	-92616.	-0.00103	0.00	7.05E+10	433.3498	209088.	0.00
13.6000	-0.01415	4010809.	-90052.	-7.38E-04	0.00	7.06E+10	634.8850	215424.	0.00
14.0000	-0.01704	3585873.	-86639.	-4.80E-04	0.00	7.08E+10	787.0630	221760.	0.00
14.4000	-0.01876	3179070.	-82611.	-2.51E-04	0.00	7.09E+10	891.3883	228096.	0.00
14.8000	-0.01945	2792805.	-78192.	-4.91E-05	0.00	7.10E+10	949.7906	234432.	0.00
15.2000	-0.01923	2428423.	-73598.	5.96E-05	0.00	4.10E+11	964.5467	240768.	0.00
15.6000	-0.01888	2086265.	-68951.	8.60E-05	0.00	4.11E+11	971.6997	247104.	0.00
16.0000	-0.01840	1766494.	-64287.	1.08E-04	0.00	4.12E+11	971.7390	253440.	0.00
16.4000	-0.01783	1469112.	-59638.	1.27E-04	0.00	4.12E+11	965.1835	259776.	0.00
16.8000	-0.01718	1193968.	-55035.	1.43E-04	0.00	4.13E+11	952.5733	266112.	0.00
17.2000	-0.01646	940772.	-50507.	1.55E-04	0.00	4.14E+11	934.4625	272448.	0.00
17.6000	-0.01569	709105.	-46077.	1.65E-04	0.00	4.14E+11	911.4125	278784.	0.00
18.0000	-0.01488	498437.	-41768.	1.72E-04	0.00	4.15E+11	883.9857	285120.	0.00
18.4000	-0.01404	308136.	-37599.	1.76E-04	0.00	4.16E+11	852.7393	291456.	0.00
18.8000	-0.01319	137483.	-33589.	1.79E-04	0.00	4.16E+11	818.2203	297792.	0.00
19.2000	-0.01233	-14319.	-29751.	1.80E-04	0.00	4.16E+11	780.9609	304128.	0.00
19.6000	-0.01146	-148127.	-26097.	1.79E-04	0.00	4.16E+11	741.4749	310464.	0.00

20.0000	-0.01061	-264852.	-22637.	1.76E-04	0.00	4.16E+11	700.2549	316800.	0.00
20.4000	-0.00977	-365443.	-19378.	1.73E-04	0.00	4.15E+11	657.7691	323136.	0.00
20.8000	-0.00895	-450879.	-16324.	1.68E-04	0.00	4.15E+11	614.4593	329472.	0.00
21.2000	-0.00816	-522158.	-13480.	1.62E-04	0.00	4.15E+11	570.7384	335808.	0.00
21.6000	-0.00739	-580287.	-10845.	1.56E-04	0.00	4.15E+11	526.9878	342144.	0.00
22.0000	-0.00666	-626274.	-8420.	1.49E-04	0.00	4.15E+11	483.5579	348480.	0.00
22.4000	-0.00596	-661121.	-6202.	1.42E-04	0.00	4.15E+11	440.7660	354816.	0.00
22.8000	-0.00530	-685811.	-4187.	1.34E-04	0.00	4.15E+11	398.8962	361152.	0.00
23.2000	-0.00468	-701312.	-2370.	1.26E-04	0.00	4.15E+11	358.1993	367488.	0.00
23.6000	-0.00409	-708559.	-744.5186	1.18E-04	0.00	4.14E+11	318.8937	373824.	0.00
24.0000	-0.00355	-708459.	695.6243	1.09E-04	0.00	4.14E+11	281.1658	380160.	0.00
24.4000	-0.00304	-701881.	1959.	1.01E-04	0.00	4.14E+11	245.1711	386496.	0.00
24.8000	-0.00258	-689654.	3054.	9.31E-05	0.00	4.15E+11	211.0355	392832.	0.00
25.2000	-0.00215	-672565.	3989.	8.52E-05	0.00	4.15E+11	178.8569	399168.	0.00
25.6000	-0.00176	-651355.	4776.	7.76E-05	0.00	4.15E+11	148.7063	405504.	0.00
26.0000	-0.00141	-626719.	5422.	7.02E-05	0.00	4.15E+11	120.6304	411840.	0.00
26.4000	-0.00109	-599304.	5939.	6.31E-05	0.00	4.15E+11	94.6527	418176.	0.00
26.8000	-8.00E-04	-569708.	6336.	5.63E-05	0.00	4.15E+11	70.7758	424512.	0.00
27.2000	-5.46E-04	-538481.	6623.	4.99E-05	0.00	4.15E+11	48.9833	430848.	0.00
27.6000	-3.21E-04	-506125.	6811.	4.39E-05	0.00	4.15E+11	29.2419	437184.	0.00
28.0000	-1.24E-04	-473096.	6909.	3.82E-05	0.00	4.15E+11	11.5033	443520.	0.00
28.4000	4.58E-05	-439802.	6926.	3.29E-05	0.00	4.15E+11	-4.2933	449856.	0.00
28.8000	1.92E-04	-406607.	6872.	2.80E-05	0.00	4.15E+11	-18.2199	456192.	0.00
29.2000	3.15E-04	-373831.	6755.	2.35E-05	0.00	4.15E+11	-30.3577	462528.	0.00
29.6000	4.18E-04	-341755.	6585.	1.94E-05	0.00	4.15E+11	-40.7954	468864.	0.00
30.0000	5.01E-04	-310619.	6368.	1.56E-05	0.00	4.16E+11	-49.6274	475200.	0.00
30.4000	5.68E-04	-280626.	6112.	1.22E-05	0.00	4.16E+11	-56.9524	481536.	0.00
30.8000	6.19E-04	-251945.	5824.	9.14E-06	0.00	4.16E+11	-62.8717	487872.	0.00
31.2000	6.55E-04	-224714.	5511.	6.39E-06	0.00	4.16E+11	-67.4876	494208.	0.00
31.6000	6.80E-04	-199036.	5179.	3.94E-06	0.00	4.16E+11	-70.9024	500544.	0.00
32.0000	6.93E-04	-174993.	4833.	1.79E-06	0.00	4.16E+11	-73.2169	506880.	0.00
32.4000	6.97E-04	-152636.	4479.	-1.06E-07	0.00	4.16E+11	-74.5300	513216.	0.00
32.8000	6.92E-04	-131997.	4120.	-1.75E-06	0.00	4.16E+11	-74.9373	519552.	0.00
33.2000	6.80E-04	-113084.	3761.	-3.16E-06	0.00	4.16E+11	-74.5307	525888.	0.00
33.6000	6.62E-04	-95889.	3406.	-4.37E-06	0.00	4.16E+11	-73.3973	532224.	0.00
34.0000	6.38E-04	-80384.	3058.	-5.39E-06	0.00	4.16E+11	-71.6194	538560.	0.00
34.4000	6.10E-04	-66529.	2720.	-6.24E-06	0.00	4.16E+11	-69.2734	544896.	0.00
34.8000	5.78E-04	-54271.	2394.	-6.93E-06	0.00	4.16E+11	-66.4298	551232.	0.00
35.2000	5.44E-04	-43543.	2083.	-7.50E-06	0.00	4.16E+11	-63.1529	557568.	0.00
35.6000	5.06E-04	-34270.	1789.	-7.95E-06	0.00	4.16E+11	-59.5008	563904.	0.00
36.0000	4.67E-04	-26368.	1513.	-8.30E-06	0.00	4.16E+11	-55.5248	570240.	0.00
36.4000	4.27E-04	-19746.	1257.	-8.56E-06	0.00	4.16E+11	-51.2701	576576.	0.00
36.8000	3.85E-04	-14304.	1021.	-8.76E-06	0.00	4.16E+11	-46.7754	582912.	0.00
37.2000	3.43E-04	-9941.	808.1208	-8.90E-06	0.00	4.16E+11	-42.0734	589248.	0.00
37.6000	3.00E-04	-6546.	617.8861	-8.99E-06	0.00	4.16E+11	-37.1911	595584.	0.00
38.0000	2.56E-04	-4009.	451.4682	-9.06E-06	0.00	4.16E+11	-32.1497	601920.	0.00
38.4000	2.13E-04	-2212.	309.5912	-9.09E-06	0.00	4.16E+11	-26.9657	608256.	0.00
38.8000	1.69E-04	-1037.	192.9111	-9.11E-06	0.00	4.16E+11	-21.6510	614592.	0.00
39.2000	1.25E-04	-360.4356	102.0364	-9.12E-06	0.00	4.16E+11	-16.2135	620928.	0.00
39.6000	8.16E-05	-57.4401	37.5454	-9.12E-06	0.00	4.16E+11	-10.6578	627264.	0.00
40.0000	3.78E-05	0.00	0.00	-9.12E-06	0.00	4.16E+11	-4.9861	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 7:

```
Pile-head deflection              =     1.75000000 inches
Computed slope at pile head       =    -0.01796861 radians
Maximum bending moment            =       8288075. inch-lbs
Maximum shear force               =        124001. lbs
Depth of maximum bending moment   =     8.00000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             45
Number of zero deflection points  =              3
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 8

```
Pile-head conditions are Displacement and Moment (Loading Type 4)
Displacement of pile head                              =     2.000000 inches
Moment at pile head                                    =          0.0 in-lbs
Axial load at pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	0.00	125863.	-0.02047	0.00	4.16E+11	0.00	0.00	0.00
0.4000	1.9018	604143.	125633.	-0.02046	0.00	4.16E+11	-95.9440	242.1596	0.00
0.8000	1.8036	1206075.	124919.	-0.02045	0.00	4.13E+11	-201.5142	536.3077	0.00
1.2000	1.7054	1803364.	123679.	-0.02043	0.00	4.12E+11	-314.9976	886.5690	0.00
1.6000	1.6074	2393395.	121881.	-0.02041	0.00	4.10E+11	-434.4454	1297.	0.00
2.0000	1.5095	2973417.	119500.	-0.02029	0.00	7.09E+10	-557.2761	1772.	0.00
2.4000	1.4126	3540600.	116526.	-0.02007	0.00	7.08E+10	-682.1729	2318.	0.00
2.8000	1.3168	4092065.	112959.	-0.01981	0.00	7.06E+10	-803.9683	2931.	0.00
3.2000	1.2224	4625006.	108821.	-0.01952	0.00	7.05E+10	-920.1870	3613.	0.00
3.6000	1.1294	5136747.	104118.	-0.01918	0.00	7.03E+10	-1040.	4418.	0.00
4.0000	1.0382	5624535.	98828.	-0.01882	0.00	7.01E+10	-1165.	5384.	0.00
4.4000	0.9488	6085491.	92916.	-0.01841	0.00	6.96E+10	-1299.	6570.	0.00
4.8000	0.8614	6516527.	86339.	-0.01797	0.00	6.78E+10	-1442.	8035.	0.00
5.2000	0.7762	6914342.	79038.	-0.01749	0.00	6.56E+10	-1600.	9893.	0.00
5.6000	0.6935	7275296.	70938.	-0.01693	0.00	5.67E+10	-1775.	12288.	0.00
6.0000	0.6137	7595346.	61942.	-0.01626	0.00	5.02E+10	-1973.	15430.	0.00
6.4000	0.5374	7869943.	52077.	-0.01549	0.00	4.59E+10	-2138.	19097.	0.00

6.8000	0.4650	8095281.	41478.	-0.01462	0.00	4.30E+10	-2278.	23514.	0.00
7.2000	0.3970	8268131.	30265.	-0.01365	0.00	3.81E+10	-2394.	28944.	0.00
7.6000	0.3340	8385822.	18565.	-0.01246	0.00	3.01E+10	-2481.	35654.	0.00
8.0000	0.2774	8446352.	6497.	-0.01103	0.00	2.66E+10	-2547.	44071.	0.00
8.4000	0.2281	8448198.	-5812.	-0.00950	0.00	2.65E+10	-2582.	54325.	0.00
8.8000	0.1862	8390557.	-18210.	-0.00806	0.00	2.98E+10	-2584.	66619.	0.00
9.2000	0.1507	8273381.	-30586.	-0.00686	0.00	3.76E+10	-2573.	81936.	0.00
9.6000	0.1203	8096928.	-42889.	-0.00588	0.00	4.30E+10	-2553.	101856.	0.00
10.0000	0.09428	7861645.	-55027.	-0.00502	0.00	4.60E+10	-2504.	127476.	0.00
10.4000	0.07217	7568672.	-66848.	-0.00425	0.00	5.07E+10	-2422.	161053.	0.00
10.8000	0.05350	7219907.	-77235.	-0.00359	0.00	5.81E+10	-1907.	171072.	0.00
11.2000	0.03769	6827212.	-85155.	-0.00305	0.00	6.63E+10	-1393.	177408.	0.00
11.6000	0.02426	6402418.	-90727.	-0.00257	0.00	6.84E+10	-928.5452	183744.	0.00
12.0000	0.01298	5956232.	-94189.	-0.00215	0.00	6.99E+10	-513.9492	190080.	0.00
12.4000	0.00366	5498203.	-95782.	-0.00175	0.00	7.02E+10	-149.8724	196416.	0.00
12.8000	-0.00385	5036722.	-95752.	-0.00139	0.00	7.03E+10	162.5503	202752.	0.00
13.2000	-0.00971	4578986.	-94347.	-0.00107	0.00	7.05E+10	422.9206	209088.	0.00
13.6000	-0.01407	4130994.	-91816.	-7.69E-04	0.00	7.06E+10	631.5694	215424.	0.00
14.0000	-0.01709	3697553.	-88405.	-5.03E-04	0.00	7.07E+10	789.4551	221760.	0.00
14.4000	-0.01890	3282301.	-84355.	-2.66E-04	0.00	7.09E+10	898.0652	228096.	0.00
14.8000	-0.01964	2887741.	-79898.	-5.72E-05	0.00	7.10E+10	959.3258	234432.	0.00
15.2000	-0.01945	2515284.	-75254.	5.52E-05	0.00	4.10E+11	975.5213	240768.	0.00
15.6000	-0.01911	2165303.	-70551.	8.26E-05	0.00	4.11E+11	983.9203	247104.	0.00
16.0000	-0.01866	1837991.	-65826.	1.06E-04	0.00	4.11E+11	985.0171	253440.	0.00
16.4000	-0.01810	1533374.	-61111.	1.26E-04	0.00	4.12E+11	979.3370	259776.	0.00
16.8000	-0.01745	1251321.	-56439.	1.42E-04	0.00	4.13E+11	967.4278	266112.	0.00
17.2000	-0.01673	991557.	-51838.	1.55E-04	0.00	4.14E+11	949.8521	272448.	0.00
17.6000	-0.01596	753678.	-47333.	1.65E-04	0.00	4.14E+11	927.1807	278784.	0.00
18.0000	-0.01515	537161.	-42948.	1.72E-04	0.00	4.15E+11	899.9856	285120.	0.00
18.4000	-0.01431	341380.	-38703.	1.77E-04	0.00	4.15E+11	868.8343	291456.	0.00
18.8000	-0.01345	165617.	-34615.	1.80E-04	0.00	4.16E+11	834.2844	297792.	0.00
19.2000	-0.01258	9076.	-30700.	1.81E-04	0.00	4.16E+11	796.8790	304128.	0.00
19.6000	-0.01171	-129105.	-26971.	1.81E-04	0.00	4.16E+11	757.1430	310464.	0.00
20.0000	-0.01084	-249842.	-23436.	1.79E-04	0.00	4.16E+11	715.5796	316800.	0.00
20.4000	-0.00999	-354091.	-20104.	1.75E-04	0.00	4.15E+11	672.6678	323136.	0.00
20.8000	-0.00916	-442843.	-16981.	1.70E-04	0.00	4.15E+11	628.8600	329472.	0.00
21.2000	-0.00836	-517105.	-14068.	1.65E-04	0.00	4.15E+11	584.5794	335808.	0.00
21.6000	-0.00758	-577899.	-11369.	1.59E-04	0.00	4.15E+11	540.2175	342144.	0.00
22.0000	-0.00683	-626246.	-8882.	1.52E-04	0.00	4.15E+11	496.1343	348480.	0.00
22.4000	-0.00612	-663162.	-6604.	1.44E-04	0.00	4.15E+11	452.6563	354816.	0.00
22.8000	-0.00545	-689649.	-4534.	1.36E-04	0.00	4.15E+11	410.0762	361152.	0.00
23.2000	-0.00482	-706688.	-2665.	1.28E-04	0.00	4.14E+11	368.6532	367488.	0.00
23.6000	-0.00422	-715233.	-991.5387	1.20E-04	0.00	4.14E+11	328.6130	373824.	0.00
24.0000	-0.00366	-716206.	493.4898	1.12E-04	0.00	4.14E+11	290.1489	380160.	0.00
24.4000	-0.00315	-710495.	1798.	1.03E-04	0.00	4.14E+11	253.4228	386496.	0.00
24.8000	-0.00267	-698945.	2931.	9.53E-05	0.00	4.15E+11	218.5663	392832.	0.00
25.2000	-0.00223	-682359.	3901.	8.73E-05	0.00	4.15E+11	185.6822	399168.	0.00
25.6000	-0.00183	-661495.	4718.	7.95E-05	0.00	4.15E+11	154.8462	405504.	0.00
26.0000	-0.00147	-637063.	5393.	7.20E-05	0.00	4.15E+11	126.1084	411840.	0.00
26.4000	-0.00114	-609726.	5934.	6.48E-05	0.00	4.15E+11	99.4959	418176.	0.00
26.8000	-8.48E-04	-580097.	6353.	5.79E-05	0.00	4.15E+11	75.0138	424512.	0.00
27.2000	-5.87E-04	-548739.	6659.	5.13E-05	0.00	4.15E+11	52.6479	430848.	0.00

27.6000	-3.55E-04	-516168.	6863.	4.52E-05	0.00	4.15E+11	32.3664	437184.	0.00
28.0000	-1.53E-04	-482851.	6975.	3.94E-05	0.00	4.15E+11	14.1222	443520.	0.00
28.4000	2.29E-05	-449209.	7004.	3.40E-05	0.00	4.15E+11	-2.1449	449856.	0.00
28.8000	1.74E-04	-415617.	6959.	2.90E-05	0.00	4.15E+11	-16.5066	456192.	0.00
29.2000	3.01E-04	-382404.	6850.	2.44E-05	0.00	4.15E+11	-29.0442	462528.	0.00
29.6000	4.08E-04	-349861.	6684.	2.02E-05	0.00	4.15E+11	-39.8467	468864.	0.00
30.0000	4.95E-04	-318236.	6471.	1.63E-05	0.00	4.15E+11	-49.0093	475200.	0.00
30.4000	5.65E-04	-287740.	6217.	1.28E-05	0.00	4.16E+11	-56.6315	481536.	0.00
30.8000	6.18E-04	-258549.	5931.	9.66E-06	0.00	4.16E+11	-62.8158	487872.	0.00
31.2000	6.57E-04	-230805.	5618.	6.83E-06	0.00	4.16E+11	-67.6661	494208.	0.00
31.6000	6.84E-04	-204621.	5284.	4.32E-06	0.00	4.16E+11	-71.2861	500544.	0.00
32.0000	6.99E-04	-180078.	4936.	2.10E-06	0.00	4.16E+11	-73.7783	506880.	0.00
32.4000	7.04E-04	-157236.	4578.	1.50E-07	0.00	4.16E+11	-75.2431	513216.	0.00
32.8000	7.00E-04	-136127.	4216.	-1.54E-06	0.00	4.16E+11	-75.7782	519552.	0.00
33.2000	6.89E-04	-116764.	3853.	-3.00E-06	0.00	4.16E+11	-75.4772	525888.	0.00
33.6000	6.71E-04	-99140.	3493.	-4.25E-06	0.00	4.16E+11	-74.4292	532224.	0.00
34.0000	6.48E-04	-83231.	3140.	-5.30E-06	0.00	4.16E+11	-72.7181	538560.	0.00
34.4000	6.20E-04	-68997.	2796.	-6.18E-06	0.00	4.16E+11	-70.4224	544896.	0.00
34.8000	5.89E-04	-56386.	2465.	-6.91E-06	0.00	4.16E+11	-67.6142	551232.	0.00
35.2000	5.54E-04	-45333.	2148.	-7.49E-06	0.00	4.16E+11	-64.3596	557568.	0.00
35.6000	5.17E-04	-35762.	1848.	-7.96E-06	0.00	4.16E+11	-60.7183	563904.	0.00
36.0000	4.78E-04	-27591.	1566.	-8.33E-06	0.00	4.16E+11	-56.7433	570240.	0.00
36.4000	4.37E-04	-20727.	1304.	-8.61E-06	0.00	4.16E+11	-52.4811	576576.	0.00
36.8000	3.95E-04	-15072.	1063.	-8.81E-06	0.00	4.16E+11	-47.9719	582912.	0.00
37.2000	3.52E-04	-10522.	844.0604	-8.96E-06	0.00	4.16E+11	-43.2496	589248.	0.00
37.6000	3.09E-04	-6969.	648.2402	-9.06E-06	0.00	4.16E+11	-38.3422	595584.	0.00
38.0000	2.65E-04	-4299.	476.3662	-9.13E-06	0.00	4.16E+11	-33.2720	601920.	0.00
38.4000	2.21E-04	-2395.	329.1783	-9.16E-06	0.00	4.16E+11	-28.0563	608256.	0.00
38.8000	1.77E-04	-1139.	207.3446	-9.18E-06	0.00	4.16E+11	-22.7077	614592.	0.00
39.2000	1.33E-04	-404.9197	111.4832	-9.19E-06	0.00	4.16E+11	-17.2346	620928.	0.00
39.6000	8.91E-05	-68.3430	42.1791	-9.20E-06	0.00	4.16E+11	-11.6421	627264.	0.00
40.0000	4.49E-05	0.00	0.00	-9.20E-06	0.00	4.16E+11	-5.9326	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 8:

```
Pile-head deflection             =     2.00000000 inches
Computed slope at pile head      =    -0.02046501 radians
Maximum bending moment           =       8448198. inch-lbs
Maximum shear force              =        125863. lbs
Depth of maximum bending moment  =     8.40000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             72
Number of zero deflection points =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 9

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 0.250000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2500	-6791776.	131187.	0.00	0.00	6.65E+10	-37.2299	357.4074	0.00
0.4000	0.2488	-6163374.	130647.	-4.67E-04	0.00	6.65E+10	-112.6959	2174.	0.00
0.8000	0.2455	-5537569.	129881.	-8.79E-04	0.00	7.02E+10	-206.1065	4030.	0.00
1.2000	0.2404	-4916512.	128687.	-0.00124	0.00	7.04E+10	-291.4273	5819.	0.00
1.6000	0.2336	-4302170.	127108.	-0.00155	0.00	7.05E+10	-366.4569	7529.	0.00
2.0000	0.2255	-3696272.	125140.	-0.00182	0.00	7.07E+10	-453.7434	9658.	0.00
2.4000	0.2162	-3100827.	122721.	-0.00205	0.00	7.09E+10	-554.0954	12305.	0.00
2.8000	0.2058	-2518149.	119785.	-0.00217	0.00	3.58E+11	-669.3362	15612.	0.00
3.2000	0.1953	-1950892.	116256.	-0.00220	0.00	4.11E+11	-801.1952	19694.	0.00
3.6000	0.1847	-1402095.	112048.	-0.00222	0.00	4.13E+11	-952.1495	24751.	0.00
4.0000	0.1739	-875235.	107058.	-0.00224	0.00	4.14E+11	-1127.	31095.	0.00
4.4000	0.1632	-374338.	101265.	-0.00224	0.00	4.15E+11	-1287.	37857.	0.00
4.8000	0.1524	96905.	94814.	-0.00224	0.00	4.16E+11	-1401.	44112.	0.00
5.2000	0.1416	535876.	87833.	-0.00224	0.00	4.15E+11	-1508.	51110.	0.00
5.6000	0.1309	940097.	80365.	-0.00223	0.00	4.14E+11	-1603.	58783.	0.00
6.0000	0.1202	1307381.	72480.	-0.00222	0.00	4.13E+11	-1682.	67172.	0.00
6.4000	0.1096	1635903.	64232.	-0.00220	0.00	4.12E+11	-1754.	76823.	0.00
6.8000	0.09908	1924007.	55686.	-0.00218	0.00	4.11E+11	-1807.	87516.	0.00
7.2000	0.08867	2170489.	46943.	-0.00216	0.00	4.11E+11	-1836.	99405.	0.00
7.6000	0.07837	2374664.	38096.	-0.00213	0.00	4.10E+11	-1850.	113317.	0.00
8.0000	0.06821	2536208.	29333.	-0.00209	0.00	2.37E+11	-1801.	126720.	0.00
8.4000	0.05830	2656260.	21132.	-0.00198	0.00	7.10E+10	-1616.	133056.	0.00
8.8000	0.04925	2739078.	13821.	-0.00179	0.00	7.10E+10	-1430.	139392.	0.00
9.2000	0.04109	2788943.	7395.	-0.00161	0.00	7.10E+10	-1247.	145728.	0.00
9.6000	0.03383	2810069.	1829.	-0.00142	0.00	7.10E+10	-1072.	152064.	0.00
10.0000	0.02748	2806503.	-2919.	-0.00123	0.00	7.10E+10	-906.9065	158400.	0.00
10.4000	0.02205	2782042.	-6912.	-0.00104	0.00	7.10E+10	-756.6482	164736.	0.00
10.8000	0.01751	2740148.	-10226.	-8.52E-04	0.00	7.10E+10	-624.2191	171072.	0.00
11.2000	0.01387	2683873.	-12955.	-6.68E-04	0.00	7.10E+10	-512.6863	177408.	0.00
11.6000	0.01110	2615784.	-15205.	-4.89E-04	0.00	7.11E+10	-424.8644	183744.	0.00
12.0000	0.00917	2537907.	-17096.	-3.66E-04	0.00	1.74E+11	-363.2854	190080.	0.00
12.4000	0.00759	2451660.	-18713.	-3.16E-04	0.00	4.10E+11	-310.4087	196416.	0.00
12.8000	0.00614	2358261.	-20080.	-2.88E-04	0.00	4.10E+11	-259.1626	202752.	0.00
13.2000	0.00482	2258891.	-21206.	-2.61E-04	0.00	4.10E+11	-209.8604	209088.	0.00
13.6000	0.00363	2154686.	-22100.	-2.36E-04	0.00	4.11E+11	-162.7725	215424.	0.00
14.0000	0.00256	2046730.	-22774.	-2.11E-04	0.00	4.11E+11	-118.1270	221760.	0.00

14.4000	0.00160	1936053.	-23240.	-1.88E-04	0.00	4.11E+11	-76.1108	228096.	0.00
14.8000	7.55E-04	1823622.	-23512.	-1.66E-04	0.00	4.11E+11	-36.8715	234432.	0.00
15.2000	1.03E-05	1710342.	-23601.	-1.45E-04	0.00	4.12E+11	-0.5187	240768.	0.00
15.6000	-6.39E-04	1597050.	-23524.	-1.26E-04	0.00	4.12E+11	32.8734	247104.	0.00
16.0000	-0.00120	1484515.	-23293.	-1.08E-04	0.00	4.12E+11	63.2641	253440.	0.00
16.4000	-0.00167	1373438.	-22924.	-9.13E-05	0.00	4.13E+11	90.6436	259776.	0.00
16.8000	-0.00207	1264449.	-22430.	-7.60E-05	0.00	4.13E+11	115.0306	266112.	0.00
17.2000	-0.00240	1158110.	-21826.	-6.19E-05	0.00	4.13E+11	136.4700	272448.	0.00
17.6000	-0.00267	1054916.	-21127.	-4.91E-05	0.00	4.14E+11	155.0291	278784.	0.00
18.0000	-0.00288	955294.	-20345.	-3.74E-05	0.00	4.14E+11	170.7969	285120.	0.00
18.4000	-0.00303	859607.	-19494.	-2.69E-05	0.00	4.14E+11	183.8793	291456.	0.00
18.8000	-0.00313	768156.	-18586.	-1.75E-05	0.00	4.14E+11	194.3982	297792.	0.00
19.2000	-0.00320	681184.	-17633.	-9.06E-06	0.00	4.15E+11	202.4884	304128.	0.00
19.6000	-0.00322	598878.	-16647.	-1.65E-06	0.00	4.15E+11	208.2945	310464.	0.00
20.0000	-0.00321	521371.	-15639.	4.83E-06	0.00	4.15E+11	211.9699	316800.	0.00
20.4000	-0.00317	448747.	-14617.	1.04E-05	0.00	4.15E+11	213.6738	323136.	0.00
20.8000	-0.00311	381047.	-13592.	1.52E-05	0.00	4.15E+11	213.5689	329472.	0.00
21.2000	-0.00303	318267.	-12571.	1.93E-05	0.00	4.15E+11	211.8198	335808.	0.00
21.6000	-0.00293	260367.	-11562.	2.26E-05	0.00	4.16E+11	208.5918	342144.	0.00
22.0000	-0.00281	207274.	-10571.	2.53E-05	0.00	4.16E+11	204.0486	348480.	0.00
22.4000	-0.00268	158882.	-9606.	2.74E-05	0.00	4.16E+11	198.3507	354816.	0.00
22.8000	-0.00255	115060.	-8670.	2.90E-05	0.00	4.16E+11	191.6543	361152.	0.00
23.2000	-0.00240	75653.	-7768.	3.01E-05	0.00	4.16E+11	184.1104	367488.	0.00
23.6000	-0.00226	40488.	-6904.	3.08E-05	0.00	4.16E+11	175.8640	373824.	0.00
24.0000	-0.00211	9376.	-6081.	3.11E-05	0.00	4.16E+11	167.0527	380160.	0.00
24.4000	-0.00196	-17888.	-5301.	3.10E-05	0.00	4.16E+11	157.8065	386496.	0.00
24.8000	-0.00181	-41516.	-4567.	3.07E-05	0.00	4.16E+11	148.2471	392832.	0.00
25.2000	-0.00167	-61728.	-3879.	3.01E-05	0.00	4.16E+11	138.4871	399168.	0.00
25.6000	-0.00152	-78750.	-3237.	2.93E-05	0.00	4.16E+11	128.6303	405504.	0.00
26.0000	-0.00138	-92808.	-2644.	2.83E-05	0.00	4.16E+11	118.7713	411840.	0.00
26.4000	-0.00125	-104129.	-2097.	2.71E-05	0.00	4.16E+11	108.9952	418176.	0.00
26.8000	-0.00112	-112940.	-1597.	2.59E-05	0.00	4.16E+11	99.3778	424512.	0.00
27.2000	-0.00100	-119460.	-1142.	2.46E-05	0.00	4.16E+11	89.9859	430848.	0.00
27.6000	-8.88E-04	-123907.	-732.4102	2.31E-05	0.00	4.16E+11	80.8770	437184.	0.00
28.0000	-7.80E-04	-126491.	-365.2647	2.17E-05	0.00	4.16E+11	72.1003	443520.	0.00
28.4000	-6.80E-04	-127414.	-39.3530	2.02E-05	0.00	4.16E+11	63.6963	449856.	0.00
28.8000	-5.86E-04	-126869.	247.1922	1.88E-05	0.00	4.16E+11	55.6976	456192.	0.00
29.2000	-4.99E-04	-125041.	496.3765	1.73E-05	0.00	4.16E+11	48.1293	462528.	0.00
29.6000	-4.20E-04	-122104.	710.3091	1.59E-05	0.00	4.16E+11	41.0093	468864.	0.00
30.0000	-3.47E-04	-118222.	891.1689	1.45E-05	0.00	4.16E+11	34.3490	475200.	0.00
30.4000	-2.81E-04	-113549.	1041.	1.32E-05	0.00	4.16E+11	28.1536	481536.	0.00
30.8000	-2.21E-04	-108227.	1163.	1.19E-05	0.00	4.16E+11	22.4226	487872.	0.00
31.2000	-1.67E-04	-102388.	1258.	1.07E-05	0.00	4.16E+11	17.1507	494208.	0.00
31.6000	-1.18E-04	-96154.	1328.	9.52E-06	0.00	4.16E+11	12.3279	500544.	0.00
32.0000	-7.52E-05	-89637.	1377.	8.45E-06	0.00	4.16E+11	7.9401	506880.	0.00
32.4000	-3.71E-05	-82936.	1406.	7.45E-06	0.00	4.16E+11	3.9699	513216.	0.00
32.8000	-3.66E-06	-76144.	1416.	6.53E-06	0.00	4.16E+11	0.3967	519552.	0.00
33.2000	2.56E-05	-69342.	1410.	5.69E-06	0.00	4.16E+11	-2.8026	525888.	0.00
33.6000	5.10E-05	-62606.	1390.	4.93E-06	0.00	4.16E+11	-5.6530	532224.	0.00
34.0000	7.29E-05	-55999.	1357.	4.25E-06	0.00	4.16E+11	-8.1812	538560.	0.00
34.4000	9.17E-05	-49581.	1312.	3.64E-06	0.00	4.16E+11	-10.4149	544896.	0.00
34.8000	1.08E-04	-43403.	1257.	3.10E-06	0.00	4.16E+11	-12.3829	551232.	0.00

35.2000	1.22E-04	-37510.	1194.	2.63E-06	0.00	4.16E+11	-14.1139	557568.	0.00
35.6000	1.33E-04	-31943.	1122.	2.23E-06	0.00	4.16E+11	-15.6368	563904.	0.00
36.0000	1.43E-04	-26735.	1044.	1.89E-06	0.00	4.16E+11	-16.9800	570240.	0.00
36.4000	1.51E-04	-21919.	959.7377	1.61E-06	0.00	4.16E+11	-18.1712	576576.	0.00
36.8000	1.58E-04	-17522.	869.9585	1.38E-06	0.00	4.16E+11	-19.2368	582912.	0.00
37.2000	1.65E-04	-13568.	775.3049	1.21E-06	0.00	4.16E+11	-20.2022	589248.	0.00
37.6000	1.70E-04	-10079.	676.2026	1.07E-06	0.00	4.16E+11	-21.0904	595584.	0.00
38.0000	1.75E-04	-7076.	572.9705	9.69E-07	0.00	4.16E+11	-21.9230	601920.	0.00
38.4000	1.79E-04	-4579.	465.8308	9.02E-07	0.00	4.16E+11	-22.7186	608256.	0.00
38.8000	1.83E-04	-2604.	354.9219	8.61E-07	0.00	4.16E+11	-23.4935	614592.	0.00
39.2000	1.88E-04	-1171.	240.3116	8.39E-07	0.00	4.16E+11	-24.2608	620928.	0.00
39.6000	1.92E-04	-297.3117	122.0128	8.30E-07	0.00	4.16E+11	-25.0304	627264.	0.00
40.0000	1.96E-04	0.00	0.00	8.29E-07	0.00	4.16E+11	-25.8083	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 9:

```
Pile-head deflection              =     0.25000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -6791776. inch-lbs
Maximum shear force               =        131187. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             36
Number of zero deflection points  =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 10

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     0.500000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.5000	-8444631.	159022.	0.00	0.00	2.67E+10	-64.8211	311.1412	0.00
0.4000	0.4964	-7682877.	158376.	-0.00145	0.00	2.67E+10	-134.5452	1301.	0.00
0.8000	0.4861	-6924223.	157539.	-0.00239	0.00	6.55E+10	-214.1445	2115.	0.00

1.2000	0.4734	-6170502.	156308.	-0.00286	0.00	6.95E+10	-298.7031	3029.	0.00
1.6000	0.4586	-5423664.	154663.	-0.00326	0.00	7.02E+10	-386.6989	4047.	0.00
2.0000	0.4421	-4685736.	152574.	-0.00361	0.00	7.04E+10	-483.7618	5253.	0.00
2.4000	0.4240	-3958953.	149996.	-0.00390	0.00	7.07E+10	-590.4873	6685.	0.00
2.8000	0.4046	-3245775.	146880.	-0.00414	0.00	7.09E+10	-707.9537	8398.	0.00
3.2000	0.3842	-2548908.	143171.	-0.00430	0.00	1.21E+11	-837.2943	10460.	0.00
3.6000	0.3633	-1871333.	138809.	-0.00437	0.00	4.11E+11	-980.2486	12951.	0.00
4.0000	0.3423	-1216342.	133721.	-0.00438	0.00	4.13E+11	-1140.	15981.	0.00
4.4000	0.3212	-587610.	127871.	-0.00439	0.00	4.15E+11	-1298.	19395.	0.00
4.8000	0.3001	11217.	121322.	-0.00440	0.00	4.16E+11	-1431.	22878.	0.00
5.2000	0.2790	577085.	114141.	-0.00439	0.00	4.15E+11	-1562.	26866.	0.00
5.6000	0.2579	1106972.	106346.	-0.00438	0.00	4.13E+11	-1686.	31383.	0.00
6.0000	0.2369	1598003.	97976.	-0.00437	0.00	4.12E+11	-1801.	36487.	0.00
6.4000	0.2160	2047540.	89073.	-0.00435	0.00	4.11E+11	-1909.	42414.	0.00
6.8000	0.1952	2453100.	79692.	-0.00432	0.00	4.10E+11	-2000.	49179.	0.00
7.2000	0.1745	2812583.	69925.	-0.00421	0.00	7.10E+10	-2070.	56930.	0.00
7.6000	0.1548	3124375.	59861.	-0.00401	0.00	7.09E+10	-2123.	65853.	0.00
8.0000	0.1360	3387248.	49542.	-0.00379	0.00	7.08E+10	-2176.	76794.	0.00
8.4000	0.1184	3599983.	39026.	-0.00355	0.00	7.08E+10	-2206.	89442.	0.00
8.8000	0.1019	3761895.	28429.	-0.00330	0.00	7.07E+10	-2210.	104076.	0.00
9.2000	0.08667	3872896.	17819.	-0.00304	0.00	7.07E+10	-2211.	122456.	0.00
9.6000	0.07268	3932957.	7198.	-0.00278	0.00	7.07E+10	-2215.	146248.	0.00
10.0000	0.05999	3941995.	-2868.	-0.00251	0.00	7.07E+10	-1980.	158400.	0.00
10.4000	0.04857	3905424.	-11620.	-0.00225	0.00	7.07E+10	-1667.	164736.	0.00
10.8000	0.03843	3830445.	-18908.	-0.00198	0.00	7.07E+10	-1370.	171072.	0.00
11.2000	0.02954	3723908.	-24816.	-0.00173	0.00	7.07E+10	-1092.	177408.	0.00
11.6000	0.02186	3592216.	-29444.	-0.00148	0.00	7.08E+10	-836.8827	183744.	0.00
12.0000	0.01535	3441242.	-32912.	-0.00124	0.00	7.08E+10	-607.9932	190080.	0.00
12.4000	0.00996	3276259.	-35350.	-0.00101	0.00	7.09E+10	-407.7420	196416.	0.00
12.8000	0.00564	3101883.	-36900.	-7.96E-04	0.00	7.09E+10	-238.2654	202752.	0.00
13.2000	0.00233	2922016.	-37715.	-5.92E-04	0.00	7.10E+10	-101.2811	209088.	0.00
13.6000	-4.17E-05	2739816.	-37954.	-4.00E-04	0.00	7.10E+10	1.8734	215424.	0.00
14.0000	-0.00152	2557660.	-37781.	-2.46E-04	0.00	9.98E+10	70.2042	221760.	0.00
14.4000	-0.00241	2377120.	-37338.	-1.71E-04	0.00	4.10E+11	114.3663	228096.	0.00
14.8000	-0.00316	2199216.	-36693.	-1.44E-04	0.00	4.10E+11	154.3454	234432.	0.00
15.2000	-0.00379	2024868.	-35866.	-1.19E-04	0.00	4.11E+11	190.1213	240768.	0.00
15.6000	-0.00431	1854900.	-34878.	-9.68E-05	0.00	4.11E+11	221.7159	247104.	0.00
16.0000	-0.00472	1690041.	-33748.	-7.61E-05	0.00	4.12E+11	249.1892	253440.	0.00
16.4000	-0.00504	1530923.	-32495.	-5.74E-05	0.00	4.12E+11	272.6347	259776.	0.00
16.8000	-0.00527	1378087.	-31140.	-4.04E-05	0.00	4.13E+11	292.1770	266112.	0.00
17.2000	-0.00543	1231982.	-29699.	-2.53E-05	0.00	4.13E+11	307.9662	272448.	0.00
17.6000	-0.00551	1092972.	-28192.	-1.18E-05	0.00	4.13E+11	320.1753	278784.	0.00
18.0000	-0.00554	961340.	-26634.	1.60E-07	0.00	4.14E+11	328.9960	285120.	0.00
18.4000	-0.00551	837288.	-25041.	1.06E-05	0.00	4.14E+11	334.6353	291456.	0.00
18.8000	-0.00544	720945.	-23428.	1.96E-05	0.00	4.14E+11	337.3120	297792.	0.00
19.2000	-0.00532	612375.	-21809.	2.73E-05	0.00	4.15E+11	337.2537	304128.	0.00
19.6000	-0.00517	511574.	-20197.	3.38E-05	0.00	4.15E+11	334.6936	310464.	0.00
20.0000	-0.00500	418485.	-18602.	3.92E-05	0.00	4.15E+11	329.8679	316800.	0.00
20.4000	-0.00480	332997.	-17035.	4.36E-05	0.00	4.15E+11	323.0127	323136.	0.00
20.8000	-0.00458	254950.	-15505.	4.70E-05	0.00	4.16E+11	314.3624	329472.	0.00
21.2000	-0.00435	184146.	-14021.	4.95E-05	0.00	4.16E+11	304.1473	335808.	0.00
21.6000	-0.00410	120350.	-12589.	5.12E-05	0.00	4.16E+11	292.5911	342144.	0.00

22.0000	-0.00386	63295.	-11215.	5.23E-05	0.00	4.16E+11	279.9102	348480.	0.00
22.4000	-0.00360	12689.	-9904.	5.27E-05	0.00	4.16E+11	266.3119	354816.	0.00
22.8000	-0.00335	-31781.	-8660.	5.26E-05	0.00	4.16E+11	251.9932	361152.	0.00
23.2000	-0.00310	-70445.	-7486.	5.20E-05	0.00	4.16E+11	237.1401	367488.	0.00
23.6000	-0.00285	-103645.	-6384.	5.10E-05	0.00	4.16E+11	221.9264	373824.	0.00
24.0000	-0.00261	-131732.	-5356.	4.97E-05	0.00	4.16E+11	206.5133	380160.	0.00
24.4000	-0.00237	-155061.	-4402.	4.80E-05	0.00	4.16E+11	191.0489	386496.	0.00
24.8000	-0.00215	-173988.	-3522.	4.61E-05	0.00	4.16E+11	175.6679	392832.	0.00
25.2000	-0.00193	-188868.	-2715.	4.40E-05	0.00	4.16E+11	160.4915	399168.	0.00
25.6000	-0.00172	-200050.	-1980.	4.18E-05	0.00	4.16E+11	145.6276	405504.	0.00
26.0000	-0.00153	-207877.	-1316.	3.94E-05	0.00	4.16E+11	131.1708	411840.	0.00
26.4000	-0.00135	-212682.	-719.6977	3.70E-05	0.00	4.16E+11	117.2028	418176.	0.00
26.8000	-0.00117	-214786.	-189.3082	3.45E-05	0.00	4.16E+11	103.7928	424512.	0.00
27.2000	-0.00101	-214499.	278.1895	3.21E-05	0.00	4.16E+11	90.9979	430848.	0.00
27.6000	-8.66E-04	-212116.	685.8576	2.96E-05	0.00	4.16E+11	78.8638	437184.	0.00
28.0000	-7.30E-04	-207915.	1037.	2.72E-05	0.00	4.16E+11	67.4254	443520.	0.00
28.4000	-6.05E-04	-202161.	1335.	2.48E-05	0.00	4.16E+11	56.7074	449856.	0.00
28.8000	-4.92E-04	-195100.	1583.	2.25E-05	0.00	4.16E+11	46.7250	456192.	0.00
29.2000	-3.89E-04	-186963.	1785.	2.03E-05	0.00	4.16E+11	37.4851	462528.	0.00
29.6000	-2.97E-04	-177962.	1945.	1.82E-05	0.00	4.16E+11	28.9864	468864.	0.00
30.0000	-2.14E-04	-168294.	2065.	1.62E-05	0.00	4.16E+11	21.2204	475200.	0.00
30.4000	-1.41E-04	-158136.	2150.	1.43E-05	0.00	4.16E+11	14.1725	481536.	0.00
30.8000	-7.70E-05	-147652.	2203.	1.25E-05	0.00	4.16E+11	7.8225	487872.	0.00
31.2000	-2.08E-05	-136987.	2227.	1.09E-05	0.00	4.16E+11	2.1451	494208.	0.00
31.6000	2.77E-05	-126274.	2225.	9.38E-06	0.00	4.16E+11	-2.8888	500544.	0.00
32.0000	6.92E-05	-115626.	2201.	7.99E-06	0.00	4.16E+11	-7.3118	506880.	0.00
32.4000	1.04E-04	-105148.	2156.	6.71E-06	0.00	4.16E+11	-11.1594	513216.	0.00
32.8000	1.34E-04	-94926.	2095.	5.56E-06	0.00	4.16E+11	-14.4690	519552.	0.00
33.2000	1.58E-04	-85038.	2019.	4.52E-06	0.00	4.16E+11	-17.2796	525888.	0.00
33.6000	1.77E-04	-75547.	1930.	3.59E-06	0.00	4.16E+11	-19.6312	532224.	0.00
34.0000	1.92E-04	-66510.	1831.	2.77E-06	0.00	4.16E+11	-21.5640	538560.	0.00
34.4000	2.04E-04	-57969.	1724.	2.05E-06	0.00	4.16E+11	-23.1184	544896.	0.00
34.8000	2.12E-04	-49960.	1610.	1.43E-06	0.00	4.16E+11	-24.3341	551232.	0.00
35.2000	2.17E-04	-42512.	1491.	8.96E-07	0.00	4.16E+11	-25.2500	557568.	0.00
35.6000	2.20E-04	-35646.	1368.	4.44E-07	0.00	4.16E+11	-25.9035	563904.	0.00
36.0000	2.22E-04	-29377.	1243.	6.90E-08	0.00	4.16E+11	-26.3306	570240.	0.00
36.4000	2.21E-04	-23715.	1116.	-2.37E-07	0.00	4.16E+11	-26.5652	576576.	0.00
36.8000	2.19E-04	-18664.	988.2417	-4.82E-07	0.00	4.16E+11	-26.6389	582912.	0.00
37.2000	2.17E-04	-14228.	860.5144	-6.72E-07	0.00	4.16E+11	-26.5808	589248.	0.00
37.6000	2.13E-04	-10403.	733.3185	-8.14E-07	0.00	4.16E+11	-26.4175	595584.	0.00
38.0000	2.09E-04	-7188.	607.1030	-9.16E-07	0.00	4.16E+11	-26.1723	601920.	0.00
38.4000	2.04E-04	-4575.	482.2122	-9.84E-07	0.00	4.16E+11	-25.8655	608256.	0.00
38.8000	1.99E-04	-2559.	358.9008	-1.02E-06	0.00	4.16E+11	-25.5142	614592.	0.00
39.2000	1.94E-04	-1130.	237.3506	-1.05E-06	0.00	4.16E+11	-25.1317	620928.	0.00
39.6000	1.89E-04	-280.0355	117.6876	-1.05E-06	0.00	4.16E+11	-24.7279	627264.	0.00
40.0000	1.84E-04	0.00	0.00	-1.06E-06	0.00	4.16E+11	-24.3086	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the

magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 10:

Pile-head deflection	=	0.50000000 inches
Computed slope at pile head	=	0.000000 radians
Maximum bending moment	=	-8444631. inch-lbs
Maximum shear force	=	159022. lbs
Depth of maximum bending moment	=	0.000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	122
Number of zero deflection points	=	2

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 11

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)

Displacement of pile head	=	0.750000 inches
Rotation of pile head	=	0.000E+00 radians
Axial load on pile head	=	0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.7500	-8699945.	173188.	0.00	0.00	1.37E+10	-60.0000	192.0000	0.00
0.4000	0.7427	-7870171.	172551.	-0.00290	0.00	1.37E+10	-132.6338	857.2034	0.00
0.8000	0.7222	-7043454.	171719.	-0.00454	0.00	6.29E+10	-214.2139	1424.	0.00
1.2000	0.6991	-6221672.	170477.	-0.00503	0.00	6.93E+10	-303.1028	2081.	0.00
1.6000	0.6739	-5406874.	168792.	-0.00543	0.00	7.02E+10	-398.9553	2842.	0.00
2.0000	0.6470	-4601268.	166630.	-0.00577	0.00	7.05E+10	-501.7447	3722.	0.00
2.4000	0.6185	-3807222.	163958.	-0.00606	0.00	7.07E+10	-611.9481	4749.	0.00
2.8000	0.5888	-3027275.	160736.	-0.00629	0.00	7.09E+10	-730.3422	5953.	0.00
3.2000	0.5582	-2264155.	156924.	-0.00640	0.00	4.10E+11	-857.9208	7378.	0.00
3.6000	0.5274	-1520802.	152475.	-0.00642	0.00	4.12E+11	-996.0913	9066.	0.00
4.0000	0.4965	-800398.	147332.	-0.00644	0.00	4.14E+11	-1147.	11087.	0.00
4.4000	0.4656	-106418.	141450.	-0.00644	0.00	4.16E+11	-1304.	13444.	0.00
4.8000	0.4346	557518.	134847.	-0.00644	0.00	4.15E+11	-1447.	15981.	0.00
5.2000	0.4037	1188113.	127554.	-0.00643	0.00	4.13E+11	-1592.	18922.	0.00
5.6000	0.3729	1782037.	119574.	-0.00641	0.00	4.12E+11	-1734.	22314.	0.00
6.0000	0.3422	2336020.	110928.	-0.00639	0.00	4.10E+11	-1869.	26215.	0.00
6.4000	0.3116	2846946.	101648.	-0.00628	0.00	7.10E+10	-1998.	30777.	0.00
6.8000	0.2819	3311843.	91782.	-0.00607	0.00	7.08E+10	-2113.	35984.	0.00
7.2000	0.2533	3728051.	81404.	-0.00583	0.00	7.07E+10	-2211.	41898.	0.00
7.6000	0.2259	4093319.	70596.	-0.00557	0.00	7.06E+10	-2292.	48703.	0.00
8.0000	0.1999	4405774.	59409.	-0.00528	0.00	7.05E+10	-2369.	56901.	0.00
8.4000	0.1752	4663645.	47906.	-0.00497	0.00	7.04E+10	-2424.	66383.	0.00

8.8000	0.1522	4865677.	36205.	-0.00464	0.00	7.04E+10	-2452.	77353.	0.00
9.2000	0.1307	5011214.	24382.	-0.00431	0.00	7.03E+10	-2474.	90888.	0.00
9.6000	0.1108	5099748.	12458.	-0.00396	0.00	7.03E+10	-2495.	108061.	0.00
10.0000	0.09263	5130806.	492.0329	-0.00361	0.00	7.03E+10	-2491.	129083.	0.00
10.4000	0.07613	5104471.	-11392.	-0.00326	0.00	7.03E+10	-2461.	155144.	0.00
10.8000	0.06130	5021444.	-22541.	-0.00292	0.00	7.03E+10	-2185.	171072.	0.00
11.2000	0.04812	4888077.	-32053.	-0.00258	0.00	7.04E+10	-1779.	177408.	0.00
11.6000	0.03654	4713732.	-39679.	-0.00225	0.00	7.04E+10	-1399.	183744.	0.00
12.0000	0.02650	4507159.	-45555.	-0.00194	0.00	7.05E+10	-1049.	190080.	0.00
12.4000	0.01794	4276405.	-49835.	-0.00164	0.00	7.06E+10	-733.9677	196416.	0.00
12.8000	0.01077	4028741.	-52688.	-0.00136	0.00	7.06E+10	-454.8202	202752.	0.00
13.2000	0.00491	3770598.	-54293.	-0.00109	0.00	7.07E+10	-213.9914	209088.	0.00
13.6000	2.86E-04	3507525.	-54838.	-8.45E-04	0.00	7.08E+10	-12.8464	215424.	0.00
14.0000	-0.00320	3244155.	-54514.	-6.16E-04	0.00	7.09E+10	147.7673	221760.	0.00
14.4000	-0.00563	2984190.	-53517.	-4.05E-04	0.00	7.09E+10	267.4566	228096.	0.00
14.8000	-0.00709	2730388.	-52045.	-2.12E-04	0.00	7.10E+10	346.2225	234432.	0.00
15.2000	-0.00766	2484562.	-50291.	-1.05E-04	0.00	4.10E+11	384.4070	240768.	0.00
15.6000	-0.00810	2247593.	-48368.	-7.75E-05	0.00	4.10E+11	416.9138	247104.	0.00
16.0000	-0.00841	2020229.	-46302.	-5.25E-05	0.00	4.11E+11	443.9050	253440.	0.00
16.4000	-0.00860	1803094.	-44119.	-3.02E-05	0.00	4.12E+11	465.5811	259776.	0.00
16.8000	-0.00870	1596685.	-41845.	-1.04E-05	0.00	4.12E+11	482.1769	266112.	0.00
17.2000	-0.00870	1401386.	-39502.	7.06E-06	0.00	4.13E+11	493.9553	272448.	0.00
17.6000	-0.00863	1217467.	-37114.	2.23E-05	0.00	4.13E+11	501.2027	278784.	0.00
18.0000	-0.00849	1045096.	-34700.	3.54E-05	0.00	4.14E+11	504.2241	285120.	0.00
18.4000	-0.00829	884342.	-32282.	4.66E-05	0.00	4.14E+11	503.3387	291456.	0.00
18.8000	-0.00804	735186.	-29877.	5.60E-05	0.00	4.14E+11	498.8744	297792.	0.00
19.2000	-0.00775	597523.	-27501.	6.37E-05	0.00	4.15E+11	491.1648	304128.	0.00
19.6000	-0.00743	471177.	-25169.	6.99E-05	0.00	4.15E+11	480.5448	310464.	0.00
20.0000	-0.00708	355902.	-22894.	7.47E-05	0.00	4.15E+11	467.3478	316800.	0.00
20.4000	-0.00671	251396.	-20688.	7.82E-05	0.00	4.16E+11	451.9016	323136.	0.00
20.8000	-0.00633	157301.	-18560.	8.05E-05	0.00	4.16E+11	434.5268	329472.	0.00
21.2000	-0.00594	73217.	-16520.	8.19E-05	0.00	4.16E+11	415.5331	335808.	0.00
21.6000	-0.00554	-1292.	-14574.	8.23E-05	0.00	4.16E+11	395.2181	342144.	0.00
22.0000	-0.00515	-66696.	-12729.	8.19E-05	0.00	4.16E+11	373.8655	348480.	0.00
22.4000	-0.00476	-123486.	-10987.	8.08E-05	0.00	4.16E+11	351.7435	354816.	0.00
22.8000	-0.00437	-172172.	-9353.	7.91E-05	0.00	4.16E+11	329.1036	361152.	0.00
23.2000	-0.00400	-213275.	-7828.	7.69E-05	0.00	4.16E+11	306.1794	367488.	0.00
23.6000	-0.00364	-247324.	-6414.	7.42E-05	0.00	4.16E+11	283.1861	373824.	0.00
24.0000	-0.00329	-274848.	-5109.	7.12E-05	0.00	4.16E+11	260.3200	380160.	0.00
24.4000	-0.00295	-296374.	-3914.	6.79E-05	0.00	4.16E+11	237.7583	386496.	0.00
24.8000	-0.00264	-312423.	-2826.	6.44E-05	0.00	4.16E+11	215.6595	392832.	0.00
25.2000	-0.00233	-323502.	-1842.	6.07E-05	0.00	4.15E+11	194.1626	399168.	0.00
25.6000	-0.00205	-330109.	-960.1509	5.69E-05	0.00	4.15E+11	173.3885	405504.	0.00
26.0000	-0.00179	-332720.	-175.7635	5.31E-05	0.00	4.15E+11	153.4396	411840.	0.00
26.4000	-0.00154	-331796.	515.0541	4.93E-05	0.00	4.15E+11	134.4011	418176.	0.00
26.8000	-0.00132	-327775.	1117.	4.54E-05	0.00	4.15E+11	116.3415	424512.	0.00
27.2000	-0.00111	-321074.	1634.	4.17E-05	0.00	4.15E+11	99.3137	430848.	0.00
27.6000	-9.15E-04	-312085.	2073.	3.80E-05	0.00	4.16E+11	83.3556	437184.	0.00
28.0000	-7.41E-04	-301175.	2437.	3.45E-05	0.00	4.16E+11	68.4917	443520.	0.00
28.4000	-5.84E-04	-288687.	2733.	3.11E-05	0.00	4.16E+11	54.7335	449856.	0.00
28.8000	-4.43E-04	-274939.	2965.	2.78E-05	0.00	4.16E+11	42.0812	456192.	0.00
29.2000	-3.17E-04	-260220.	3140.	2.47E-05	0.00	4.16E+11	30.5245	462528.	0.00

29.6000	-2.05E-04	-244798.	3261.	2.18E-05	0.00	4.16E+11	20.0438	468864.	0.00
30.0000	-1.07E-04	-228915.	3335.	1.91E-05	0.00	4.16E+11	10.6116	475200.	0.00
30.4000	-2.19E-05	-212787.	3365.	1.65E-05	0.00	4.16E+11	2.1933	481536.	0.00
30.8000	5.17E-05	-196608.	3358.	1.42E-05	0.00	4.16E+11	-5.2516	487872.	0.00
31.2000	1.14E-04	-180551.	3317.	1.20E-05	0.00	4.16E+11	-11.7689	494208.	0.00
31.6000	1.67E-04	-164764.	3247.	1.00E-05	0.00	4.16E+11	-17.4081	500544.	0.00
32.0000	2.10E-04	-149379.	3152.	8.20E-06	0.00	4.16E+11	-22.2220	506880.	0.00
32.4000	2.46E-04	-134506.	3036.	6.56E-06	0.00	4.16E+11	-26.2657	513216.	0.00
32.8000	2.73E-04	-120238.	2902.	5.09E-06	0.00	4.16E+11	-29.5955	519552.	0.00
33.2000	2.95E-04	-106651.	2753.	3.78E-06	0.00	4.16E+11	-32.2686	525888.	0.00
33.6000	3.10E-04	-93809.	2593.	2.62E-06	0.00	4.16E+11	-34.3420	532224.	0.00
34.0000	3.20E-04	-81757.	2425.	1.61E-06	0.00	4.16E+11	-35.8723	538560.	0.00
34.4000	3.25E-04	-70532.	2250.	7.31E-07	0.00	4.16E+11	-36.9146	544896.	0.00
34.8000	3.27E-04	-60157.	2071.	-2.33E-08	0.00	4.16E+11	-37.5225	551232.	0.00
35.2000	3.25E-04	-50647.	1891.	-6.63E-07	0.00	4.16E+11	-37.7472	557568.	0.00
35.6000	3.20E-04	-42007.	1710.	-1.20E-06	0.00	4.16E+11	-37.6374	563904.	0.00
36.0000	3.13E-04	-34234.	1530.	-1.64E-06	0.00	4.16E+11	-37.2390	570240.	0.00
36.4000	3.05E-04	-27319.	1353.	-1.99E-06	0.00	4.16E+11	-36.5945	576576.	0.00
36.8000	2.94E-04	-21247.	1179.	-2.27E-06	0.00	4.16E+11	-35.7428	582912.	0.00
37.2000	2.83E-04	-15998.	1010.	-2.49E-06	0.00	4.16E+11	-34.7194	589248.	0.00
37.6000	2.70E-04	-11549.	846.2583	-2.65E-06	0.00	4.16E+11	-33.5555	595584.	0.00
38.0000	2.57E-04	-7874.	688.2561	-2.76E-06	0.00	4.16E+11	-32.2787	601920.	0.00
38.4000	2.44E-04	-4942.	536.5977	-2.83E-06	0.00	4.16E+11	-30.9122	608256.	0.00
38.8000	2.30E-04	-2723.	391.6679	-2.88E-06	0.00	4.16E+11	-29.4751	614592.	0.00
39.2000	2.16E-04	-1182.	253.7702	-2.90E-06	0.00	4.16E+11	-27.9823	620928.	0.00
39.6000	2.02E-04	-286.4686	123.1469	-2.91E-06	0.00	4.16E+11	-26.4441	627264.	0.00
40.0000	1.88E-04	0.00	0.00	-2.91E-06	0.00	4.16E+11	-24.8671	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 11:

```
Pile-head deflection              =     0.75000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -8699945. inch-lbs
Maximum shear force               =        173188. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             50
Number of zero deflection points =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 12

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head = 1.000000 inches
Rotation of pile head = 0.000E+00 radians
Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.0000	-8700598.	184282.	0.00	0.00	9.09E+09	-35.0000	84.0000	0.00
0.4000	0.9890	-7817400.	183717.	-0.00436	0.00	9.09E+09	-117.7553	571.5294	0.00
0.8000	0.9581	-6936916.	182932.	-0.00668	0.00	6.52E+10	-209.4406	1049.	0.00
1.2000	0.9248	-6061257.	181692.	-0.00715	0.00	6.97E+10	-307.2269	1595.	0.00
1.6000	0.8895	-5192676.	179970.	-0.00753	0.00	7.03E+10	-410.2711	2214.	0.00
2.0000	0.8525	-4333548.	177742.	-0.00786	0.00	7.05E+10	-517.9769	2916.	0.00
2.4000	0.8141	-3486354.	174985.	-0.00812	0.00	7.08E+10	-630.7188	3719.	0.00
2.8000	0.7745	-2653692.	171673.	-0.00833	0.00	7.10E+10	-749.1250	4643.	0.00
3.2000	0.7341	-1838290.	167777.	-0.00843	0.00	4.11E+11	-874.5072	5718.	0.00
3.6000	0.6936	-1043037.	163258.	-0.00845	0.00	4.14E+11	-1008.	6978.	0.00
4.0000	0.6530	-271015.	158073.	-0.00846	0.00	4.16E+11	-1152.	8469.	0.00
4.4000	0.6124	474460.	152169.	-0.00846	0.00	4.15E+11	-1308.	10251.	0.00
4.8000	0.5718	1189804.	145527.	-0.00845	0.00	4.13E+11	-1459.	12251.	0.00
5.2000	0.5313	1871521.	138150.	-0.00843	0.00	4.11E+11	-1614.	14584.	0.00
5.6000	0.4909	2516046.	130029.	-0.00840	0.00	4.10E+11	-1770.	17302.	0.00
6.0000	0.4507	3119801.	121171.	-0.00828	0.00	7.09E+10	-1921.	20463.	0.00
6.4000	0.4114	3679291.	111597.	-0.00805	0.00	7.07E+10	-2068.	24129.	0.00
6.8000	0.3734	4191133.	101343.	-0.00778	0.00	7.06E+10	-2204.	28339.	0.00
7.2000	0.3367	4652188.	90473.	-0.00748	0.00	7.04E+10	-2325.	33149.	0.00
7.6000	0.3015	5059671.	79060.	-0.00715	0.00	7.03E+10	-2430.	38685.	0.00
8.0000	0.2680	5411164.	67161.	-0.00679	0.00	7.02E+10	-2528.	45269.	0.00
8.4000	0.2363	5704416.	54845.	-0.00641	0.00	7.01E+10	-2604.	52890.	0.00
8.8000	0.2065	5937677.	42226.	-0.00601	0.00	7.00E+10	-2654.	61710.	0.00
9.2000	0.1786	6109782.	29387.	-0.00560	0.00	6.96E+10	-2695.	72445.	0.00
9.6000	0.1527	6219793.	16364.	-0.00517	0.00	6.93E+10	-2731.	85851.	0.00
10.0000	0.1289	6266880.	3227.	-0.00474	0.00	6.90E+10	-2743.	102136.	0.00
10.4000	0.1072	6250777.	-9900.	-0.00431	0.00	6.91E+10	-2727.	122121.	0.00
10.8000	0.08756	6171844.	-22879.	-0.00388	0.00	6.95E+10	-2681.	146984.	0.00
11.2000	0.06997	6031140.	-35521.	-0.00346	0.00	6.98E+10	-2586.	177408.	0.00
11.6000	0.05439	5830848.	-46724.	-0.00305	0.00	7.01E+10	-2082.	183744.	0.00
12.0000	0.04071	5582588.	-55590.	-0.00266	0.00	7.02E+10	-1612.	190080.	0.00
12.4000	0.02888	5297181.	-62296.	-0.00229	0.00	7.02E+10	-1182.	196416.	0.00
12.8000	0.01878	4984549.	-67035.	-0.00193	0.00	7.03E+10	-793.1104	202752.	0.00
13.2000	0.01031	4653644.	-70016.	-0.00161	0.00	7.04E+10	-449.0393	209088.	0.00
13.6000	0.00336	4312393.	-71456.	-0.00130	0.00	7.05E+10	-150.9247	215424.	0.00
14.0000	-0.00217	3967665.	-71577.	-0.00102	0.00	7.06E+10	100.4585	221760.	0.00
14.4000	-0.00642	3625251.	-70604.	-7.61E-04	0.00	7.08E+10	304.9732	228096.	0.00
14.8000	-0.00948	3289864.	-68761.	-5.27E-04	0.00	7.08E+10	463.0319	234432.	0.00
15.2000	-0.01147	2965145.	-66269.	-3.15E-04	0.00	7.09E+10	575.5122	240768.	0.00
15.6000	-0.01250	2653686.	-63342.	-1.25E-04	0.00	7.10E+10	643.6790	247104.	0.00
16.0000	-0.01267	2357058.	-60192.	-2.14E-05	0.00	4.10E+11	669.1164	253440.	0.00

16.4000	-0.01271	2075845.	-56935.	4.48E-06	0.00	4.11E+11	687.8320	259776.	0.00
16.8000	-0.01263	1810481.	-53604.	2.72E-05	0.00	4.12E+11	700.1898	266112.	0.00
17.2000	-0.01245	1561249.	-50228.	4.68E-05	0.00	4.12E+11	706.5837	272448.	0.00
17.6000	-0.01218	1328296.	-46834.	6.36E-05	0.00	4.13E+11	707.4312	278784.	0.00
18.0000	-0.01184	1111643.	-43449.	7.78E-05	0.00	4.13E+11	703.1669	285120.	0.00
18.4000	-0.01143	911190.	-40095.	8.95E-05	0.00	4.14E+11	694.2366	291456.	0.00
18.8000	-0.01098	726733.	-36794.	9.90E-05	0.00	4.14E+11	681.0921	297792.	0.00
19.2000	-0.01048	557968.	-33565.	1.06E-04	0.00	4.15E+11	664.1863	304128.	0.00
19.6000	-0.00996	404507.	-30426.	1.12E-04	0.00	4.15E+11	643.9681	310464.	0.00
20.0000	-0.00941	265882.	-27390.	1.16E-04	0.00	4.16E+11	620.8786	316800.	0.00
20.4000	-0.00884	141562.	-24471.	1.18E-04	0.00	4.16E+11	595.3478	323136.	0.00
20.8000	-0.00827	30959.	-21680.	1.19E-04	0.00	4.16E+11	567.7904	329472.	0.00
21.2000	-0.00770	-66562.	-19024.	1.19E-04	0.00	4.16E+11	538.6041	335808.	0.00
21.6000	-0.00713	-151674.	-16512.	1.18E-04	0.00	4.16E+11	508.1672	342144.	0.00
22.0000	-0.00657	-225078.	-14148.	1.16E-04	0.00	4.16E+11	476.8370	348480.	0.00
22.4000	-0.00602	-287495.	-11936.	1.13E-04	0.00	4.16E+11	444.9473	354816.	0.00
22.8000	-0.00549	-339661.	-9877.	1.09E-04	0.00	4.15E+11	412.8082	361152.	0.00
23.2000	-0.00497	-382315.	-7973.	1.05E-04	0.00	4.15E+11	380.7049	367488.	0.00
23.6000	-0.00448	-416198.	-6222.	1.00E-04	0.00	4.15E+11	348.8966	373824.	0.00
24.0000	-0.00401	-442043.	-4622.	9.53E-05	0.00	4.15E+11	317.6167	380160.	0.00
24.4000	-0.00357	-460569.	-3171.	9.01E-05	0.00	4.15E+11	287.0723	386496.	0.00
24.8000	-0.00315	-472482.	-1864.	8.47E-05	0.00	4.15E+11	257.4448	392832.	0.00
25.2000	-0.00275	-478463.	-696.6935	7.92E-05	0.00	4.15E+11	228.8906	399168.	0.00
25.6000	-0.00239	-479170.	336.3436	7.36E-05	0.00	4.15E+11	201.5415	405504.	0.00
26.0000	-0.00205	-475234.	1241.	6.81E-05	0.00	4.15E+11	175.5062	411840.	0.00
26.4000	-0.00173	-467254.	2025.	6.27E-05	0.00	4.15E+11	150.8708	418176.	0.00
26.8000	-0.00144	-455798.	2693.	5.73E-05	0.00	4.15E+11	127.7006	424512.	0.00
27.2000	-0.00118	-441400.	3254.	5.21E-05	0.00	4.15E+11	106.0411	430848.	0.00
27.6000	-9.43E-04	-424558.	3715.	4.71E-05	0.00	4.15E+11	85.9196	437184.	0.00
28.0000	-7.29E-04	-405738.	4083.	4.23E-05	0.00	4.15E+11	67.3465	443520.	0.00
28.4000	-5.37E-04	-385365.	4365.	3.78E-05	0.00	4.15E+11	50.3170	449856.	0.00
28.8000	-3.66E-04	-363833.	4569.	3.34E-05	0.00	4.15E+11	34.8127	456192.	0.00
29.2000	-2.16E-04	-341499.	4703.	2.94E-05	0.00	4.15E+11	20.8028	462528.	0.00
29.6000	-8.44E-05	-318686.	4773.	2.55E-05	0.00	4.15E+11	8.2459	468864.	0.00
30.0000	2.94E-05	-295683.	4785.	2.20E-05	0.00	4.16E+11	-2.9086	475200.	0.00
30.4000	1.27E-04	-272746.	4748.	1.87E-05	0.00	4.16E+11	-12.7189	481536.	0.00
30.8000	2.09E-04	-250103.	4666.	1.57E-05	0.00	4.16E+11	-21.2498	487872.	0.00
31.2000	2.77E-04	-227949.	4547.	1.29E-05	0.00	4.16E+11	-28.5709	494208.	0.00
31.6000	3.33E-04	-206454.	4395.	1.04E-05	0.00	4.16E+11	-34.7553	500544.	0.00
32.0000	3.78E-04	-185760.	4216.	8.17E-06	0.00	4.16E+11	-39.8789	506880.	0.00
32.4000	4.12E-04	-165984.	4014.	6.14E-06	0.00	4.16E+11	-44.0188	513216.	0.00
32.8000	4.37E-04	-147222.	3795.	4.33E-06	0.00	4.16E+11	-47.2530	519552.	0.00
33.2000	4.53E-04	-129549.	3563.	2.73E-06	0.00	4.16E+11	-49.6589	525888.	0.00
33.6000	4.63E-04	-113021.	3320.	1.33E-06	0.00	4.16E+11	-51.3129	532224.	0.00
34.0000	4.66E-04	-97674.	3072.	1.15E-07	0.00	4.16E+11	-52.2892	538560.	0.00
34.4000	4.64E-04	-83532.	2820.	-9.31E-07	0.00	4.16E+11	-52.6597	544896.	0.00
34.8000	4.57E-04	-70604.	2567.	-1.82E-06	0.00	4.16E+11	-52.4929	551232.	0.00
35.2000	4.46E-04	-58885.	2317.	-2.57E-06	0.00	4.16E+11	-51.8536	557568.	0.00
35.6000	4.32E-04	-48361.	2071.	-3.19E-06	0.00	4.16E+11	-50.8028	563904.	0.00
36.0000	4.16E-04	-39007.	1830.	-3.69E-06	0.00	4.16E+11	-49.3966	570240.	0.00
36.4000	3.97E-04	-30791.	1597.	-4.09E-06	0.00	4.16E+11	-47.6869	576576.	0.00
36.8000	3.76E-04	-23674.	1373.	-4.41E-06	0.00	4.16E+11	-45.7204	582912.	0.00

37.2000	3.55E-04	-17611.	1159.	-4.65E-06	0.00	4.16E+11	-43.5386	589248.	0.00
37.6000	3.32E-04	-12550.	955.4392	-4.82E-06	0.00	4.16E+11	-41.1781	595584.	0.00
38.0000	3.08E-04	-8438.	763.8032	-4.94E-06	0.00	4.16E+11	-38.6702	601920.	0.00
38.4000	2.84E-04	-5218.	584.4960	-5.02E-06	0.00	4.16E+11	-36.0411	608256.	0.00
38.8000	2.60E-04	-2827.	418.0494	-5.07E-06	0.00	4.16E+11	-33.3117	614592.	0.00
39.2000	2.36E-04	-1204.	264.9063	-5.09E-06	0.00	4.16E+11	-30.4979	620928.	0.00
39.6000	2.11E-04	-284.0547	125.4447	-5.10E-06	0.00	4.16E+11	-27.6111	627264.	0.00
40.0000	1.87E-04	0.00	0.00	-5.10E-06	0.00	4.16E+11	-24.6575	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 12:

```
Pile-head deflection              =     1.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -8700598. inch-lbs
Maximum shear force               =        184282. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             29
Number of zero deflection points  =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 13

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                              =     1.250000 inches
Rotation of pile head                                  =    0.000E+00 radians
Axial load on pile head                                =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.2500	-8700048.	192787.	0.00	0.00	6.70E+09	-10.0000	19.2000	0.00
0.4000	1.2350	-7775856.	192293.	-0.00590	0.00	6.70E+09	-102.8887	399.8755	0.00
0.8000	1.1934	-6854034.	191555.	-0.00893	0.00	6.62E+10	-204.6824	823.2773	0.00
1.2000	1.1493	-5936928.	190316.	-0.00938	0.00	7.00E+10	-311.3301	1300.	0.00
1.6000	1.1033	-5026996.	188558.	-0.00976	0.00	7.03E+10	-421.4947	1834.	0.00
2.0000	1.0556	-4126774.	186264.	-0.01007	0.00	7.06E+10	-534.0237	2428.	0.00
2.4000	1.0066	-3238857.	183425.	-0.01032	0.00	7.09E+10	-649.2064	3096.	0.00
2.8000	0.9566	-2365897.	180025.	-0.01044	0.00	4.10E+11	-767.5372	3852.	0.00

3.2000	0.9064	-1510621.	176045.	-0.01047	0.00	4.12E+11	-890.6257	4717.	0.00
3.6000	0.8561	-675866.	171459.	-0.01048	0.00	4.15E+11	-1020.	5719.	0.00
4.0000	0.8058	135389.	166234.	-0.01048	0.00	4.16E+11	-1157.	6893.	0.00
4.4000	0.7554	919985.	160328.	-0.01048	0.00	4.14E+11	-1304.	8285.	0.00
4.8000	0.7052	1674538.	153710.	-0.01046	0.00	4.12E+11	-1454.	9895.	0.00
5.2000	0.6550	2395598.	146341.	-0.01044	0.00	4.10E+11	-1617.	11847.	0.00
5.6000	0.6050	3079409.	138152.	-0.01032	0.00	7.09E+10	-1795.	14243.	0.00
6.0000	0.5560	3721860.	129135.	-0.01009	0.00	7.07E+10	-1962.	16941.	0.00
6.4000	0.5081	4319101.	119330.	-0.00982	0.00	7.05E+10	-2123.	20056.	0.00
6.8000	0.4617	4867425.	108772.	-0.00950	0.00	7.04E+10	-2276.	23657.	0.00
7.2000	0.4169	5363316.	97515.	-0.00915	0.00	7.02E+10	-2415.	27802.	0.00
7.6000	0.3739	5803570.	85628.	-0.00877	0.00	7.01E+10	-2538.	32588.	0.00
8.0000	0.3327	6185343.	73172.	-0.00836	0.00	6.94E+10	-2651.	38251.	0.00
8.4000	0.2936	6506026.	60225.	-0.00791	0.00	6.79E+10	-2743.	44843.	0.00
8.8000	0.2567	6763506.	46900.	-0.00744	0.00	6.67E+10	-2809.	52514.	0.00
9.2000	0.2222	6956270.	33292.	-0.00694	0.00	6.49E+10	-2861.	61813.	0.00
9.6000	0.1901	7083108.	19451.	-0.00641	0.00	6.17E+10	-2906.	73358.	0.00
10.0000	0.1607	7143002.	5459.	-0.00585	0.00	6.01E+10	-2925.	87364.	0.00
10.4000	0.1340	7135514.	-8559.	-0.00528	0.00	6.03E+10	-2916.	104466.	0.00
10.8000	0.1100	7060840.	-22463.	-0.00472	0.00	6.24E+10	-2878.	125546.	0.00
11.2000	0.08866	6919865.	-36105.	-0.00420	0.00	6.55E+10	-2806.	151929.	0.00
11.6000	0.06973	6714233.	-49247.	-0.00370	0.00	6.69E+10	-2669.	183744.	0.00
12.0000	0.05312	6447098.	-60702.	-0.00323	0.00	6.81E+10	-2104.	190080.	0.00
12.4000	0.03868	6131497.	-69549.	-0.00280	0.00	6.95E+10	-1583.	196416.	0.00
12.8000	0.02628	5779424.	-76013.	-0.00239	0.00	7.01E+10	-1110.	202752.	0.00
13.2000	0.01578	5401774.	-80327.	-0.00200	0.00	7.02E+10	-687.2787	209088.	0.00
13.6000	0.00705	5008289.	-82735.	-0.00165	0.00	7.03E+10	-316.2649	215424.	0.00
14.0000	-4.33E-05	4607518.	-83489.	-0.00132	0.00	7.05E+10	2.0008	221760.	0.00
14.4000	-0.00563	4206792.	-82843.	-0.00102	0.00	7.06E+10	267.3863	228096.	0.00
14.8000	-0.00984	3812228.	-81048.	-7.48E-04	0.00	7.07E+10	480.4409	234432.	0.00
15.2000	-0.01280	3428732.	-78353.	-5.02E-04	0.00	7.08E+10	642.2910	240768.	0.00
15.6000	-0.01466	3060035.	-75001.	-2.82E-04	0.00	7.09E+10	754.5421	247104.	0.00
16.0000	-0.01551	2708723.	-71224.	-8.72E-05	0.00	7.10E+10	819.1898	253440.	0.00
16.4000	-0.01549	2376284.	-67245.	1.83E-05	0.00	4.10E+11	838.5414	259776.	0.00
16.8000	-0.01534	2063166.	-63192.	4.42E-05	0.00	4.11E+11	850.4338	266112.	0.00
17.2000	-0.01507	1769642.	-59098.	6.66E-05	0.00	4.12E+11	855.3510	272448.	0.00
17.6000	-0.01470	1495825.	-54996.	8.56E-05	0.00	4.12E+11	853.8022	278784.	0.00
18.0000	-0.01425	1241679.	-50916.	1.02E-04	0.00	4.13E+11	846.3145	285120.	0.00
18.4000	-0.01373	1007033.	-46884.	1.15E-04	0.00	4.14E+11	833.4261	291456.	0.00
18.8000	-0.01315	791589.	-42927.	1.25E-04	0.00	4.14E+11	815.6803	297792.	0.00
19.2000	-0.01253	594938.	-39064.	1.33E-04	0.00	4.15E+11	793.6191	304128.	0.00
19.6000	-0.01187	416572.	-35317.	1.39E-04	0.00	4.15E+11	767.7780	310464.	0.00
20.0000	-0.01119	255895.	-31701.	1.43E-04	0.00	4.16E+11	738.6818	316800.	0.00
20.4000	-0.01050	112238.	-28232.	1.45E-04	0.00	4.16E+11	706.8403	323136.	0.00
20.8000	-0.00980	-15133.	-24921.	1.45E-04	0.00	4.16E+11	672.7439	329472.	0.00
21.2000	-0.00910	-127005.	-21778.	1.45E-04	0.00	4.16E+11	636.8616	335808.	0.00
21.6000	-0.00841	-224203.	-18810.	1.43E-04	0.00	4.16E+11	599.6388	342144.	0.00
22.0000	-0.00773	-307586.	-16024.	1.40E-04	0.00	4.16E+11	561.4943	348480.	0.00
22.4000	-0.00707	-378031.	-13421.	1.36E-04	0.00	4.15E+11	522.8197	354816.	0.00
22.8000	-0.00643	-436431.	-11005.	1.31E-04	0.00	4.15E+11	483.9771	361152.	0.00
23.2000	-0.00582	-483680.	-8775.	1.26E-04	0.00	4.15E+11	445.2983	367488.	0.00
23.6000	-0.00523	-520670.	-6729.	1.20E-04	0.00	4.15E+11	407.0838	373824.	0.00

24.0000	-0.00467	-548280.	-4865.	1.14E-04	0.00	4.15E+11	369.6028	380160.	0.00
24.4000	-0.00414	-567375.	-3179.	1.07E-04	0.00	4.15E+11	333.0938	386496.	0.00
24.8000	-0.00364	-578795.	-1665.	1.00E-04	0.00	4.15E+11	297.7646	392832.	0.00
25.2000	-0.00317	-583354.	-316.8146	9.38E-05	0.00	4.15E+11	263.7929	399168.	0.00
25.6000	-0.00274	-581836.	871.4743	8.70E-05	0.00	4.15E+11	231.3275	405504.	0.00
26.0000	-0.00234	-574988.	1908.	8.03E-05	0.00	4.15E+11	200.4894	411840.	0.00
26.4000	-0.00197	-563521.	2800.	7.37E-05	0.00	4.15E+11	171.3734	418176.	0.00
26.8000	-0.00163	-548105.	3557.	6.73E-05	0.00	4.15E+11	144.0494	424512.	0.00
27.2000	-0.00132	-529371.	4188.	6.11E-05	0.00	4.15E+11	118.5639	430848.	0.00
27.6000	-0.00104	-507904.	4700.	5.51E-05	0.00	4.15E+11	94.9424	437184.	0.00
28.0000	-7.92E-04	-484251.	5104.	4.93E-05	0.00	4.15E+11	73.1908	443520.	0.00
28.4000	-5.69E-04	-458911.	5407.	4.39E-05	0.00	4.15E+11	53.2975	449856.	0.00
28.8000	-3.71E-04	-432343.	5620.	3.87E-05	0.00	4.15E+11	35.2349	456192.	0.00
29.2000	-1.97E-04	-404963.	5750.	3.39E-05	0.00	4.15E+11	18.9616	462528.	0.00
29.6000	-4.53E-05	-377146.	5806.	2.94E-05	0.00	4.15E+11	4.4238	468864.	0.00
30.0000	8.53E-05	-349227.	5796.	2.52E-05	0.00	4.15E+11	-8.4425	475200.	0.00
30.4000	1.96E-04	-321503.	5729.	2.13E-05	0.00	4.15E+11	-19.7104	481536.	0.00
30.8000	2.90E-04	-294233.	5611.	1.78E-05	0.00	4.16E+11	-29.4596	487872.	0.00
31.2000	3.67E-04	-267642.	5449.	1.45E-05	0.00	4.16E+11	-37.7759	494208.	0.00
31.6000	4.29E-04	-241921.	5251.	1.16E-05	0.00	4.16E+11	-44.7487	500544.	0.00
32.0000	4.78E-04	-217231.	5023.	8.92E-06	0.00	4.16E+11	-50.4700	506880.	0.00
32.4000	5.15E-04	-193704.	4769.	6.54E-06	0.00	4.16E+11	-55.0330	513216.	0.00
32.8000	5.41E-04	-171445.	4497.	4.44E-06	0.00	4.16E+11	-58.5312	519552.	0.00
33.2000	5.57E-04	-150534.	4210.	2.58E-06	0.00	4.16E+11	-61.0572	525888.	0.00
33.6000	5.65E-04	-131030.	3913.	9.52E-07	0.00	4.16E+11	-62.7019	532224.	0.00
34.0000	5.66E-04	-112971.	3610.	-4.57E-07	0.00	4.16E+11	-63.5534	538560.	0.00
34.4000	5.61E-04	-96376.	3304.	-1.67E-06	0.00	4.16E+11	-63.6968	544896.	0.00
34.8000	5.50E-04	-81249.	3000.	-2.69E-06	0.00	4.16E+11	-63.2127	551232.	0.00
35.2000	5.35E-04	-67578.	2699.	-3.55E-06	0.00	4.16E+11	-62.1774	557568.	0.00
35.6000	5.16E-04	-55340.	2404.	-4.26E-06	0.00	4.16E+11	-60.6621	563904.	0.00
36.0000	4.94E-04	-44499.	2118.	-4.84E-06	0.00	4.16E+11	-58.7326	570240.	0.00
36.4000	4.70E-04	-35012.	1841.	-5.29E-06	0.00	4.16E+11	-56.4488	576576.	0.00
36.8000	4.44E-04	-26825.	1576.	-5.65E-06	0.00	4.16E+11	-53.8648	582912.	0.00
37.2000	4.16E-04	-19879.	1325.	-5.92E-06	0.00	4.16E+11	-51.0287	589248.	0.00
37.6000	3.87E-04	-14109.	1087.	-6.12E-06	0.00	4.16E+11	-47.9823	595584.	0.00
38.0000	3.57E-04	-9444.	864.3702	-6.25E-06	0.00	4.16E+11	-44.7614	601920.	0.00
38.4000	3.27E-04	-5811.	657.5933	-6.34E-06	0.00	4.16E+11	-41.3956	608256.	0.00
38.8000	2.96E-04	-3131.	467.2631	-6.39E-06	0.00	4.16E+11	-37.9086	614592.	0.00
39.2000	2.65E-04	-1325.	293.9181	-6.42E-06	0.00	4.16E+11	-34.3184	620928.	0.00
39.6000	2.34E-04	-309.5729	138.0241	-6.43E-06	0.00	4.16E+11	-30.6374	627264.	0.00
40.0000	2.04E-04	0.00	0.00	-6.43E-06	0.00	4.16E+11	-26.8726	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 13:

```
Pile-head deflection             =     1.25000000 inches
Computed slope at pile head      =       0.000000 radians
Maximum bending moment           =      -8700048. inch-lbs
Maximum shear force              =        192787. lbs
Depth of maximum bending moment  =       0.000000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =             39
Number of zero deflection points =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 14

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                            =     1.500000 inches
Rotation of pile head                                =    0.000E+00 radians
Axial load on pile head                              =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5000	-8699945.	197956.	0.00	0.00	5.36E+09	0.00	0.00	0.00
0.4000	1.4813	-7750860.	197496.	-0.00737	0.00	5.36E+09	-95.9440	310.8991	0.00
0.8000	1.4292	-6803986.	196782.	-0.01109	0.00	6.65E+10	-201.5142	676.7722	0.00
1.2000	1.3748	-5861755.	195542.	-0.01154	0.00	7.01E+10	-314.9975	1100.	0.00
1.6000	1.3185	-4926781.	193747.	-0.01191	0.00	7.04E+10	-432.7912	1576.	0.00
2.0000	1.2605	-4001779.	191388.	-0.01221	0.00	7.06E+10	-550.2095	2095.	0.00
2.4000	1.2013	-3089454.	188465.	-0.01245	0.00	7.09E+10	-667.8951	2669.	0.00
2.8000	1.1410	-2192517.	184975.	-0.01257	0.00	4.10E+11	-786.1917	3307.	0.00
3.2000	1.0806	-1313694.	180912.	-0.01259	0.00	4.13E+11	-906.9288	4028.	0.00
3.6000	1.0202	-455766.	176259.	-0.01260	0.00	4.15E+11	-1032.	4855.	0.00
4.0000	0.9597	378389.	170994.	-0.01260	0.00	4.15E+11	-1162.	5812.	0.00
4.4000	0.8992	1185771.	165085.	-0.01259	0.00	4.13E+11	-1300.	6939.	0.00
4.8000	0.8388	1963202.	158500.	-0.01257	0.00	4.11E+11	-1444.	8260.	0.00
5.2000	0.7786	2707372.	151197.	-0.01247	0.00	7.10E+10	-1600.	9862.	0.00
5.6000	0.7192	3414688.	143111.	-0.01226	0.00	7.08E+10	-1770.	11811.	0.00
6.0000	0.6609	4081234.	134166.	-0.01201	0.00	7.06E+10	-1957.	14215.	0.00
6.4000	0.6039	4702686.	124271.	-0.01171	0.00	7.04E+10	-2166.	17215.	0.00
6.8000	0.5485	5274239.	113469.	-0.01137	0.00	7.02E+10	-2335.	20437.	0.00
7.2000	0.4948	5791988.	101891.	-0.01099	0.00	7.01E+10	-2489.	24148.	0.00
7.6000	0.4430	6252389.	89612.	-0.01057	0.00	6.91E+10	-2627.	28464.	0.00
8.0000	0.3933	6652265.	76705.	-0.01012	0.00	6.72E+10	-2751.	33579.	0.00
8.4000	0.3458	6988755.	63255.	-0.00962	0.00	6.44E+10	-2853.	39597.	0.00
8.8000	0.3009	7259511.	49383.	-0.00905	0.00	5.71E+10	-2927.	46690.	0.00
9.2000	0.2589	7462827.	35197.	-0.00841	0.00	5.27E+10	-2984.	55314.	0.00
9.6000	0.2202	7597398.	20767.	-0.00771	0.00	5.02E+10	-3029.	66020.	0.00
10.0000	0.1849	7662191.	6186.	-0.00697	0.00	4.91E+10	-3047.	79074.	0.00
10.4000	0.1533	7656786.	-8413.	-0.00622	0.00	4.92E+10	-3036.	95071.	0.00

10.8000	0.1252	7581425.	-22889.	-0.00549	0.00	5.05E+10	-2995.	114800.	0.00
11.2000	0.1006	7437052.	-37090.	-0.00479	0.00	5.32E+10	-2922.	139363.	0.00
11.6000	0.07926	7225356.	-50857.	-0.00415	0.00	5.79E+10	-2814.	170419.	0.00
12.0000	0.06076	6948823.	-63386.	-0.00360	0.00	6.50E+10	-2406.	190080.	0.00
12.4000	0.04472	6616854.	-73552.	-0.00311	0.00	6.74E+10	-1830.	196416.	0.00
12.8000	0.03094	6242727.	-81079.	-0.00265	0.00	6.92E+10	-1307.	202752.	0.00
13.2000	0.01923	5838495.	-86226.	-0.00224	0.00	7.01E+10	-837.8529	209088.	0.00
13.6000	0.00945	5414958.	-89255.	-0.00185	0.00	7.02E+10	-424.2753	215424.	0.00
14.0000	0.00145	4981646.	-90434.	-0.00150	0.00	7.03E+10	-66.9795	221760.	0.00
14.4000	-0.00492	4546790.	-90033.	-0.00117	0.00	7.05E+10	233.9071	228096.	0.00
14.8000	-0.00981	4117324.	-88322.	-8.78E-04	0.00	7.06E+10	479.0179	234432.	0.00
15.2000	-0.01335	3698895.	-85566.	-6.12E-04	0.00	7.07E+10	669.6334	240768.	0.00
15.6000	-0.01569	3295893.	-82020.	-3.75E-04	0.00	7.08E+10	807.5713	247104.	0.00
16.0000	-0.01695	2911499.	-77934.	-1.65E-04	0.00	7.10E+10	895.0858	253440.	0.00
16.4000	-0.01727	2547727.	-73542.	-1.15E-05	0.00	1.11E+11	934.7776	259776.	0.00
16.8000	-0.01706	2205492.	-69029.	5.66E-05	0.00	4.10E+11	945.9505	266112.	0.00
17.2000	-0.01673	1885052.	-64479.	8.05E-05	0.00	4.11E+11	949.5422	272448.	0.00
17.6000	-0.01629	1586489.	-59930.	1.01E-04	0.00	4.12E+11	946.1203	278784.	0.00
18.0000	-0.01576	1309725.	-55412.	1.18E-04	0.00	4.13E+11	936.2709	285120.	0.00
18.4000	-0.01516	1054533.	-50956.	1.31E-04	0.00	4.14E+11	920.5902	291456.	0.00
18.8000	-0.01450	820551.	-46587.	1.42E-04	0.00	4.14E+11	899.6786	297792.	0.00
19.2000	-0.01380	607298.	-42330.	1.50E-04	0.00	4.15E+11	874.1336	304128.	0.00
19.6000	-0.01306	414185.	-38205.	1.56E-04	0.00	4.15E+11	844.5444	310464.	0.00
20.0000	-0.01230	240530.	-34231.	1.60E-04	0.00	4.16E+11	811.4875	316800.	0.00
20.4000	-0.01152	85572.	-30422.	1.62E-04	0.00	4.16E+11	775.5214	323136.	0.00
20.8000	-0.01074	-51519.	-26791.	1.62E-04	0.00	4.16E+11	737.1830	329472.	0.00
21.2000	-0.00996	-171624.	-23349.	1.61E-04	0.00	4.16E+11	696.9849	335808.	0.00
21.6000	-0.00919	-275671.	-20103.	1.58E-04	0.00	4.16E+11	655.4129	342144.	0.00
22.0000	-0.00844	-364617.	-17059.	1.55E-04	0.00	4.15E+11	612.9234	348480.	0.00
22.4000	-0.00771	-439442.	-14221.	1.50E-04	0.00	4.15E+11	569.9427	354816.	0.00
22.8000	-0.00700	-501135.	-11588.	1.45E-04	0.00	4.15E+11	526.8637	361152.	0.00
23.2000	-0.00632	-550689.	-9162.	1.38E-04	0.00	4.15E+11	484.0458	367488.	0.00
23.6000	-0.00567	-589091.	-6940.	1.32E-04	0.00	4.15E+11	441.8142	373824.	0.00
24.0000	-0.00506	-617313.	-4919.	1.25E-04	0.00	4.15E+11	400.4596	380160.	0.00
24.4000	-0.00447	-636309.	-3093.	1.18E-04	0.00	4.15E+11	360.2384	386496.	0.00
24.8000	-0.00393	-647005.	-1457.	1.10E-04	0.00	4.15E+11	321.3732	392832.	0.00
25.2000	-0.00342	-650296.	-3.9767	1.03E-04	0.00	4.15E+11	284.0536	399168.	0.00
25.6000	-0.00294	-647043.	1274.	9.52E-05	0.00	4.15E+11	248.4374	405504.	0.00
26.0000	-0.00250	-638066.	2385.	8.78E-05	0.00	4.15E+11	214.6522	411840.	0.00
26.4000	-0.00210	-624143.	3339.	8.05E-05	0.00	4.15E+11	182.7968	418176.	0.00
26.8000	-0.00173	-606008.	4145.	7.33E-05	0.00	4.15E+11	152.9428	424512.	0.00
27.2000	-0.00139	-584350.	4812.	6.65E-05	0.00	4.15E+11	125.1367	430848.	0.00
27.6000	-0.00109	-559809.	5351.	5.98E-05	0.00	4.15E+11	99.4019	437184.	0.00
28.0000	-8.20E-04	-532977.	5772.	5.35E-05	0.00	4.15E+11	75.7402	443520.	0.00
28.4000	-5.78E-04	-504401.	6083.	4.75E-05	0.00	4.15E+11	54.1346	449856.	0.00
28.8000	-3.64E-04	-474577.	6296.	4.19E-05	0.00	4.15E+11	34.5509	456192.	0.00
29.2000	-1.76E-04	-443957.	6420.	3.65E-05	0.00	4.15E+11	16.9401	462528.	0.00
29.6000	-1.27E-05	-412946.	6463.	3.16E-05	0.00	4.15E+11	1.2404	468864.	0.00
30.0000	1.27E-04	-381908.	6436.	2.70E-05	0.00	4.15E+11	-12.6215	475200.	0.00
30.4000	2.46E-04	-351159.	6346.	2.28E-05	0.00	4.15E+11	-24.7280	481536.	0.00
30.8000	3.46E-04	-320981.	6203.	1.89E-05	0.00	4.15E+11	-35.1690	487872.	0.00
31.2000	4.28E-04	-291613.	6013.	1.53E-05	0.00	4.16E+11	-44.0400	494208.	0.00

31.6000	4.93E-04	-263260.	5783.	1.21E-05	0.00	4.16E+11	-51.4409	500544.	0.00
32.0000	5.44E-04	-236092.	5522.	9.26E-06	0.00	4.16E+11	-57.4742	506880.	0.00
32.4000	5.82E-04	-210248.	5235.	6.68E-06	0.00	4.16E+11	-62.2431	513216.	0.00
32.8000	6.08E-04	-185838.	4927.	4.39E-06	0.00	4.16E+11	-65.8509	519552.	0.00
33.2000	6.24E-04	-162945.	4605.	2.38E-06	0.00	4.16E+11	-68.3996	525888.	0.00
33.6000	6.31E-04	-141628.	4273.	6.21E-07	0.00	4.16E+11	-69.9891	532224.	0.00
34.0000	6.30E-04	-121924.	3935.	-9.01E-07	0.00	4.16E+11	-70.7162	538560.	0.00
34.4000	6.23E-04	-103849.	3596.	-2.20E-06	0.00	4.16E+11	-70.6737	544896.	0.00
34.8000	6.09E-04	-87403.	3258.	-3.31E-06	0.00	4.16E+11	-69.9500	551232.	0.00
35.2000	5.91E-04	-72568.	2926.	-4.23E-06	0.00	4.16E+11	-68.6281	557568.	0.00
35.6000	5.68E-04	-59314.	2601.	-4.99E-06	0.00	4.16E+11	-66.7854	563904.	0.00
36.0000	5.43E-04	-47599.	2286.	-5.61E-06	0.00	4.16E+11	-64.4933	570240.	0.00
36.4000	5.15E-04	-37370.	1983.	-6.10E-06	0.00	4.16E+11	-61.8168	576576.	0.00
36.8000	4.84E-04	-28565.	1693.	-6.48E-06	0.00	4.16E+11	-58.8141	582912.	0.00
37.2000	4.52E-04	-21116.	1419.	-6.77E-06	0.00	4.16E+11	-55.5371	589248.	0.00
37.6000	4.19E-04	-14946.	1161.	-6.98E-06	0.00	4.16E+11	-52.0306	595584.	0.00
38.0000	3.85E-04	-9974.	919.7002	-7.12E-06	0.00	4.16E+11	-48.3330	601920.	0.00
38.4000	3.51E-04	-6116.	696.9589	-7.21E-06	0.00	4.16E+11	-44.4758	608256.	0.00
38.8000	3.16E-04	-3283.	493.0546	-7.27E-06	0.00	4.16E+11	-40.4843	614592.	0.00
39.2000	2.81E-04	-1383.	308.5864	-7.29E-06	0.00	4.16E+11	-36.3774	620928.	0.00
39.6000	2.46E-04	-320.9932	144.0771	-7.30E-06	0.00	4.16E+11	-32.1681	627264.	0.00
40.0000	2.11E-04	0.00	0.00	-7.31E-06	0.00	4.16E+11	-27.8640	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 14:

```
Pile-head deflection              =     1.50000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -8699945. inch-lbs
Maximum shear force               =        197956. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             54
Number of zero deflection points  =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 15

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                            =     1.750000 inches
Rotation of pile head                                =    0.000E+00 radians
```

Axial load on pile head = 0.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.7500	-8699938.	202081.	0.00	0.00	4.49E+09	0.00	0.00	0.00
0.4000	1.7277	-7731053.	201621.	-0.00879	0.00	4.49E+09	-95.9440	266.5638	0.00
0.8000	1.6656	-6764380.	200907.	-0.01317	0.00	6.66E+10	-201.5142	580.7278	0.00
1.2000	1.6012	-5802349.	199667.	-0.01361	0.00	7.01E+10	-314.9975	944.2671	0.00
1.6000	1.5349	-4847575.	197868.	-0.01398	0.00	7.04E+10	-434.4453	1359.	0.00
2.0000	1.4671	-3902812.	195488.	-0.01427	0.00	7.07E+10	-557.2758	1823.	0.00
2.4000	1.3979	-2970888.	192514.	-0.01451	0.00	7.09E+10	-682.1725	2342.	0.00
2.8000	1.3278	-2054681.	188944.	-0.01462	0.00	4.11E+11	-805.0790	2910.	0.00
3.2000	1.2576	-1157023.	184796.	-0.01464	0.00	4.13E+11	-923.4790	3525.	0.00
3.6000	1.1873	-280642.	180074.	-0.01465	0.00	4.16E+11	-1044.	4220.	0.00
4.0000	1.1170	571690.	174768.	-0.01464	0.00	4.15E+11	-1167.	5015.	0.00
4.4000	1.0467	1397133.	168857.	-0.01463	0.00	4.13E+11	-1296.	5943.	0.00
4.8000	0.9765	2192717.	162307.	-0.01461	0.00	4.10E+11	-1433.	7045.	0.00
5.2000	0.9064	2955280.	155071.	-0.01450	0.00	7.09E+10	-1582.	8376.	0.00
5.6000	0.8373	3681400.	147091.	-0.01427	0.00	7.07E+10	-1743.	9993.	0.00
6.0000	0.7694	4367357.	138297.	-0.01400	0.00	7.05E+10	-1921.	11986.	0.00
6.4000	0.7029	5009049.	128595.	-0.01368	0.00	7.03E+10	-2121.	14487.	0.00
6.8000	0.6380	5601867.	117877.	-0.01332	0.00	7.01E+10	-2344.	17638.	0.00
7.2000	0.5750	6140670.	106116.	-0.01292	0.00	6.95E+10	-2556.	21339.	0.00
7.6000	0.5140	6620578.	93484.	-0.01247	0.00	6.73E+10	-2707.	25280.	0.00
8.0000	0.4553	7038112.	80166.	-0.01196	0.00	6.31E+10	-2842.	29957.	0.00
8.4000	0.3992	7390176.	66260.	-0.01137	0.00	5.42E+10	-2953.	35509.	0.00
8.8000	0.3462	7674204.	51887.	-0.01067	0.00	4.89E+10	-3036.	42091.	0.00
9.2000	0.2968	7888294.	37168.	-0.00987	0.00	4.57E+10	-3097.	50096.	0.00
9.6000	0.2514	8031020.	22189.	-0.00902	0.00	4.38E+10	-3144.	60034.	0.00
10.0000	0.2102	8101307.	7053.	-0.00813	0.00	4.29E+10	-3163.	72217.	0.00
10.4000	0.1734	8098729.	-8099.	-0.00722	0.00	4.29E+10	-3151.	87228.	0.00
10.8000	0.1409	8023557.	-23117.	-0.00633	0.00	4.39E+10	-3107.	105836.	0.00
11.2000	0.1126	7876808.	-37842.	-0.00548	0.00	4.58E+10	-3029.	129085.	0.00
11.6000	0.08833	7660270.	-52111.	-0.00469	0.00	4.91E+10	-2916.	158479.	0.00
12.0000	0.06762	7376540.	-65537.	-0.00399	0.00	5.44E+10	-2678.	190080.	0.00
12.4000	0.05003	7031113.	-76878.	-0.00340	0.00	6.32E+10	-2047.	196416.	0.00
12.8000	0.03501	6638515.	-85340.	-0.00289	0.00	6.73E+10	-1479.	202752.	0.00
13.2000	0.02225	6211849.	-91215.	-0.00244	0.00	6.93E+10	-969.4150	209088.	0.00
13.6000	0.01157	5762847.	-94788.	-0.00203	0.00	7.01E+10	-519.1130	215424.	0.00
14.0000	0.00277	5301885.	-96341.	-0.00165	0.00	7.02E+10	-128.1116	221760.	0.00
14.4000	-0.00428	4837971.	-96160.	-0.00130	0.00	7.04E+10	203.4619	228096.	0.00
14.8000	-0.00975	4378745.	-94529.	-9.91E-04	0.00	7.05E+10	476.3140	234432.	0.00
15.2000	-0.01379	3930493.	-91725.	-7.08E-04	0.00	7.07E+10	691.8567	240768.	0.00
15.6000	-0.01655	3498181.	-88020.	-4.56E-04	0.00	7.08E+10	852.0900	247104.	0.00
16.0000	-0.01817	3085502.	-83672.	-2.33E-04	0.00	7.09E+10	959.4899	253440.	0.00
16.4000	-0.01879	2694929.	-78929.	-3.76E-05	0.00	7.10E+10	1017.	259776.	0.00
16.8000	-0.01853	2327786.	-74022.	6.71E-05	0.00	4.10E+11	1027.	266112.	0.00
17.2000	-0.01815	1984316.	-69084.	9.23E-05	0.00	4.11E+11	1030.	272448.	0.00
17.6000	-0.01765	1664577.	-64152.	1.14E-04	0.00	4.12E+11	1025.	278784.	0.00
18.0000	-0.01706	1368453.	-59261.	1.31E-04	0.00	4.13E+11	1013.	285120.	0.00

18.4000	-0.01639	1095670.	-54442.	1.46E-04	0.00	4.13E+11	995.0573	291456.	0.00
18.8000	-0.01566	845814.	-49722.	1.57E-04	0.00	4.14E+11	971.4533	297792.	0.00
19.2000	-0.01488	618340.	-45127.	1.65E-04	0.00	4.15E+11	942.9429	304128.	0.00
19.6000	-0.01407	412592.	-40680.	1.71E-04	0.00	4.15E+11	910.1613	310464.	0.00
20.0000	-0.01324	227814.	-36399.	1.75E-04	0.00	4.16E+11	873.7289	316800.	0.00
20.4000	-0.01239	63166.	-32299.	1.77E-04	0.00	4.16E+11	834.2463	323136.	0.00
20.8000	-0.01154	-82261.	-28396.	1.77E-04	0.00	4.16E+11	792.2898	329472.	0.00
21.2000	-0.01070	-209433.	-24698.	1.75E-04	0.00	4.16E+11	748.4094	335808.	0.00
21.6000	-0.00986	-319362.	-21214.	1.72E-04	0.00	4.15E+11	703.1254	342144.	0.00
22.0000	-0.00905	-413091.	-17950.	1.68E-04	0.00	4.15E+11	656.9270	348480.	0.00
22.4000	-0.00826	-491684.	-14909.	1.62E-04	0.00	4.15E+11	610.2695	354816.	0.00
22.8000	-0.00749	-556217.	-12092.	1.56E-04	0.00	4.15E+11	563.5725	361152.	0.00
23.2000	-0.00676	-607765.	-9498.	1.50E-04	0.00	4.15E+11	517.2194	367488.	0.00
23.6000	-0.00605	-647396.	-7125.	1.42E-04	0.00	4.15E+11	471.5564	373824.	0.00
24.0000	-0.00539	-676162.	-4968.	1.35E-04	0.00	4.15E+11	426.8924	380160.	0.00
24.4000	-0.00476	-695093.	-3024.	1.27E-04	0.00	4.15E+11	383.4991	386496.	0.00
24.8000	-0.00417	-705188.	-1283.	1.19E-04	0.00	4.14E+11	341.6116	392832.	0.00
25.2000	-0.00362	-707413.	260.0119	1.10E-04	0.00	4.14E+11	301.4299	399168.	0.00
25.6000	-0.00311	-702692.	1615.	1.02E-04	0.00	4.14E+11	263.1197	405504.	0.00
26.0000	-0.00264	-691909.	2791.	9.41E-05	0.00	4.15E+11	226.8141	411840.	0.00
26.4000	-0.00221	-675901.	3797.	8.62E-05	0.00	4.15E+11	192.6153	418176.	0.00
26.8000	-0.00182	-655454.	4645.	7.85E-05	0.00	4.15E+11	160.5967	424512.	0.00
27.2000	-0.00146	-631308.	5344.	7.11E-05	0.00	4.15E+11	130.8045	430848.	0.00
27.6000	-0.00113	-604147.	5906.	6.39E-05	0.00	4.15E+11	103.2605	437184.	0.00
28.0000	-8.44E-04	-574608.	6341.	5.71E-05	0.00	4.15E+11	77.9633	443520.	0.00
28.4000	-5.86E-04	-543272.	6660.	5.06E-05	0.00	4.15E+11	54.8915	449856.	0.00
28.8000	-3.58E-04	-510672.	6873.	4.45E-05	0.00	4.15E+11	34.0053	456192.	0.00
29.2000	-1.58E-04	-477288.	6992.	3.88E-05	0.00	4.15E+11	15.2490	462528.	0.00
29.6000	1.48E-05	-443553.	7025.	3.35E-05	0.00	4.15E+11	-1.4465	468864.	0.00
30.0000	1.63E-04	-409851.	6982.	2.86E-05	0.00	4.15E+11	-16.1619	475200.	0.00
30.4000	2.89E-04	-376521.	6874.	2.40E-05	0.00	4.15E+11	-28.9878	481536.	0.00
30.8000	3.94E-04	-343859.	6708.	1.98E-05	0.00	4.15E+11	-40.0225	487872.	0.00
31.2000	4.80E-04	-312120.	6494.	1.61E-05	0.00	4.16E+11	-49.3703	494208.	0.00
31.6000	5.48E-04	-281518.	6238.	1.26E-05	0.00	4.16E+11	-57.1397	500544.	0.00
32.0000	6.01E-04	-252232.	5949.	9.55E-06	0.00	4.16E+11	-63.4418	506880.	0.00
32.4000	6.40E-04	-224408.	5633.	6.80E-06	0.00	4.16E+11	-68.3888	513216.	0.00
32.8000	6.66E-04	-198160.	5295.	4.36E-06	0.00	4.16E+11	-72.0923	519552.	0.00
33.2000	6.81E-04	-173573.	4943.	2.21E-06	0.00	4.16E+11	-74.6624	525888.	0.00
33.6000	6.87E-04	-150706.	4581.	3.41E-07	0.00	4.16E+11	-76.2067	532224.	0.00
34.0000	6.85E-04	-129595.	4214.	-1.28E-06	0.00	4.16E+11	-76.8292	538560.	0.00
34.4000	6.75E-04	-110254.	3845.	-2.66E-06	0.00	4.16E+11	-76.6298	544896.	0.00
34.8000	6.59E-04	-92678.	3480.	-3.83E-06	0.00	4.16E+11	-75.7030	551232.	0.00
35.2000	6.38E-04	-76847.	3120.	-4.81E-06	0.00	4.16E+11	-74.1378	557568.	0.00
35.6000	6.13E-04	-62724.	2769.	-5.62E-06	0.00	4.16E+11	-72.0170	563904.	0.00
36.0000	5.84E-04	-50260.	2430.	-6.27E-06	0.00	4.16E+11	-69.4166	570240.	0.00
36.4000	5.53E-04	-39396.	2104.	-6.79E-06	0.00	4.16E+11	-66.4058	576576.	0.00
36.8000	5.19E-04	-30061.	1793.	-7.19E-06	0.00	4.16E+11	-63.0468	582912.	0.00
37.2000	4.84E-04	-22179.	1500.	-7.49E-06	0.00	4.16E+11	-59.3944	589248.	0.00
37.6000	4.47E-04	-15666.	1224.	-7.71E-06	0.00	4.16E+11	-55.4962	595584.	0.00
38.0000	4.10E-04	-10431.	967.2492	-7.86E-06	0.00	4.16E+11	-51.3927	601920.	0.00
38.4000	3.72E-04	-6380.	730.8260	-7.96E-06	0.00	4.16E+11	-47.1170	608256.	0.00
38.8000	3.33E-04	-3415.	515.2754	-8.01E-06	0.00	4.16E+11	-42.6957	614592.	0.00

39.2000	2.95E-04	-1433.	321.2488	-8.04E-06	0.00	4.16E+11	-38.1487	620928.	0.00
39.6000	2.56E-04	-330.9225	149.3170	-8.05E-06	0.00	4.16E+11	-33.4895	627264.	0.00
40.0000	2.18E-04	0.00	0.00	-8.05E-06	0.00	4.16E+11	-28.7259	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 15:

```
Pile-head deflection              =     1.75000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -8699938. inch-lbs
Maximum shear force               =        202081. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
Depth of maximum shear force      =       0.000000 feet below pile head
Number of iterations              =             32
Number of zero deflection points  =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 16

```
Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
Displacement of pile head                        =     2.000000 inches
Rotation of pile head                            =    0.000E+00 radians
Axial load on pile head                          =          0.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.0000	-8699891.	204283.	0.00	0.00	3.86E+09	0.00	0.00	0.00
0.4000	1.9740	-7720440.	203822.	-0.01021	0.00	3.86E+09	-95.9440	233.2956	0.00
0.8000	1.9019	-6743200.	203108.	-0.01526	0.00	6.68E+10	-201.5142	508.5671	0.00
1.2000	1.8275	-5770602.	201868.	-0.01570	0.00	7.01E+10	-314.9977	827.3336	0.00
1.6000	1.7512	-4805262.	200070.	-0.01606	0.00	7.04E+10	-434.4456	1191.	0.00
2.0000	1.6734	-3849932.	197690.	-0.01635	0.00	7.07E+10	-557.2763	1599.	0.00
2.4000	1.5942	-2907441.	194715.	-0.01658	0.00	7.10E+10	-682.1732	2054.	0.00
2.8000	1.5142	-1980667.	191140.	-0.01669	0.00	4.11E+11	-807.3255	2559.	0.00
3.2000	1.4340	-1072495.	186966.	-0.01671	0.00	4.14E+11	-932.1271	3120.	0.00
3.6000	1.3537	-185798.	182195.	-0.01672	0.00	4.16E+11	-1055.	3742.	0.00
4.0000	1.2735	676581.	176849.	-0.01672	0.00	4.15E+11	-1172.	4418.	0.00
4.4000	1.1933	1511955.	170935.	-0.01670	0.00	4.12E+11	-1292.	5197.	0.00
4.8000	1.1131	2317561.	164420.	-0.01668	0.00	4.10E+11	-1423.	6135.	0.00

5.2000	1.0331	3090385.	157251.	-0.01656	0.00	7.09E+10	-1564.	7267.	0.00
5.6000	0.9541	3827172.	149376.	-0.01633	0.00	7.07E+10	-1717.	8638.	0.00
6.0000	0.8764	4524398.	140730.	-0.01604	0.00	7.05E+10	-1886.	10328.	0.00
6.4000	0.8001	5178176.	131218.	-0.01571	0.00	7.03E+10	-2078.	12463.	0.00
6.8000	0.7255	5784087.	120729.	-0.01534	0.00	7.01E+10	-2293.	15167.	0.00
7.2000	0.6529	6337176.	109142.	-0.01492	0.00	6.87E+10	-2535.	18640.	0.00
7.6000	0.5823	6831850.	96394.	-0.01445	0.00	6.63E+10	-2776.	22885.	0.00
8.0000	0.5142	7262555.	82725.	-0.01390	0.00	5.70E+10	-2919.	27250.	0.00
8.4000	0.4489	7626008.	68430.	-0.01322	0.00	4.97E+10	-3037.	32476.	0.00
8.8000	0.3872	7919480.	53640.	-0.01243	0.00	4.52E+10	-3125.	38740.	0.00
9.2000	0.3296	8140948.	38489.	-0.01155	0.00	4.24E+10	-3188.	46428.	0.00
9.6000	0.2763	8288974.	23089.	-0.01055	0.00	3.66E+10	-3229.	56095.	0.00
10.0000	0.2283	8362602.	7564.	-0.00938	0.00	3.19E+10	-3239.	68114.	0.00
10.4000	0.1863	8361593.	-7937.	-0.00811	0.00	3.18E+10	-3220.	82946.	0.00
10.8000	0.1504	8286406.	-23272.	-0.00694	0.00	3.64E+10	-3170.	101176.	0.00
11.2000	0.1197	8138179.	-38293.	-0.00593	0.00	4.24E+10	-3089.	123827.	0.00
11.6000	0.09348	7918790.	-52837.	-0.00505	0.00	4.52E+10	-2971.	152563.	0.00
12.0000	0.07127	7630944.	-66727.	-0.00426	0.00	4.96E+10	-2816.	189675.	0.00
12.4000	0.05260	7278211.	-78652.	-0.00358	0.00	5.67E+10	-2152.	196416.	0.00
12.8000	0.03689	6875887.	-87558.	-0.00302	0.00	6.61E+10	-1558.	202752.	0.00
13.2000	0.02358	6437656.	-93764.	-0.00255	0.00	6.82E+10	-1027.	209088.	0.00
13.6000	0.01245	5975756.	-97570.	-0.00211	0.00	6.99E+10	-558.6101	215424.	0.00
14.0000	0.00328	5500987.	-99274.	-0.00172	0.00	7.02E+10	-151.5554	221760.	0.00
14.4000	-0.00408	5022725.	-99173.	-0.00136	0.00	7.03E+10	193.8748	228096.	0.00
14.8000	-0.00979	4548931.	-97559.	-0.00104	0.00	7.05E+10	478.3712	234432.	0.00
15.2000	-0.01402	4086158.	-94723.	-7.42E-04	0.00	7.06E+10	703.3586	240768.	0.00
15.6000	-0.01692	3639590.	-90945.	-4.80E-04	0.00	7.07E+10	870.8726	247104.	0.00
16.0000	-0.01863	3213088.	-86494.	-2.47E-04	0.00	7.09E+10	983.4442	253440.	0.00
16.4000	-0.01929	2809244.	-81629.	-4.35E-05	0.00	7.10E+10	1044.	259776.	0.00
16.8000	-0.01904	2429453.	-76589.	6.57E-05	0.00	4.10E+11	1056.	266112.	0.00
17.2000	-0.01866	2073988.	-71514.	9.21E-05	0.00	4.11E+11	1059.	272448.	0.00
17.6000	-0.01816	1742923.	-66440.	1.14E-04	0.00	4.12E+11	1055.	278784.	0.00
18.0000	-0.01756	1436159.	-61406.	1.33E-04	0.00	4.13E+11	1043.	285120.	0.00
18.4000	-0.01688	1153429.	-56442.	1.48E-04	0.00	4.13E+11	1025.	291456.	0.00
18.8000	-0.01614	894319.	-51578.	1.60E-04	0.00	4.14E+11	1001.	297792.	0.00
19.2000	-0.01535	658282.	-46840.	1.69E-04	0.00	4.15E+11	972.5385	304128.	0.00
19.6000	-0.01452	444652.	-42252.	1.75E-04	0.00	4.15E+11	939.2085	310464.	0.00
20.0000	-0.01367	252661.	-37833.	1.79E-04	0.00	4.16E+11	902.0625	316800.	0.00
20.4000	-0.01280	81454.	-33600.	1.81E-04	0.00	4.16E+11	861.7213	323136.	0.00
20.8000	-0.01193	-69900.	-29567.	1.81E-04	0.00	4.16E+11	818.7808	329472.	0.00
21.2000	-0.01106	-202388.	-25745.	1.80E-04	0.00	4.16E+11	773.8099	335808.	0.00
21.6000	-0.01020	-317048.	-22142.	1.77E-04	0.00	4.15E+11	727.3472	342144.	0.00
22.0000	-0.00937	-414950.	-18764.	1.72E-04	0.00	4.15E+11	679.8994	348480.	0.00
22.4000	-0.00855	-497187.	-15616.	1.67E-04	0.00	4.15E+11	631.9383	354816.	0.00
22.8000	-0.00776	-564864.	-12698.	1.61E-04	0.00	4.15E+11	583.8993	361152.	0.00
23.2000	-0.00700	-619088.	-10010.	1.54E-04	0.00	4.15E+11	536.1805	367488.	0.00
23.6000	-0.00628	-660958.	-7549.	1.47E-04	0.00	4.15E+11	489.1416	373824.	0.00
24.0000	-0.00559	-691559.	-5312.	1.39E-04	0.00	4.15E+11	443.1038	380160.	0.00
24.4000	-0.00495	-711951.	-3292.	1.31E-04	0.00	4.14E+11	398.3502	386496.	0.00
24.8000	-0.00434	-723164.	-1484.	1.22E-04	0.00	4.14E+11	355.1260	392832.	0.00
25.2000	-0.00377	-726196.	121.1853	1.14E-04	0.00	4.14E+11	313.6400	399168.	0.00
25.6000	-0.00324	-722001.	1532.	1.06E-04	0.00	4.14E+11	274.0657	405504.	0.00

26.0000	-0.00276	-711491.	2757.	9.74E-05	0.00	4.14E+11	236.5428	411840.	0.00
26.4000	-0.00231	-695532.	3808.	8.92E-05	0.00	4.15E+11	201.1792	418176.	0.00
26.8000	-0.00190	-674938.	4694.	8.13E-05	0.00	4.15E+11	168.0528	424512.	0.00
27.2000	-0.00153	-650471.	5426.	7.36E-05	0.00	4.15E+11	137.2136	430848.	0.00
27.6000	-0.00119	-622844.	6017.	6.63E-05	0.00	4.15E+11	108.6857	437184.	0.00
28.0000	-8.93E-04	-592712.	6475.	5.92E-05	0.00	4.15E+11	82.4699	443520.	0.00
28.4000	-6.25E-04	-560680.	6814.	5.26E-05	0.00	4.15E+11	58.5456	449856.	0.00
28.8000	-3.88E-04	-527299.	7043.	4.63E-05	0.00	4.15E+11	36.8734	456192.	0.00
29.2000	-1.81E-04	-493069.	7173.	4.04E-05	0.00	4.15E+11	17.3970	462528.	0.00
29.6000	-4.76E-07	-458437.	7215.	3.49E-05	0.00	4.15E+11	0.04645	468864.	0.00
30.0000	1.54E-04	-423805.	7178.	2.98E-05	0.00	4.15E+11	-15.2607	475200.	0.00
30.4000	2.85E-04	-389524.	7073.	2.51E-05	0.00	4.15E+11	-28.6168	481536.	0.00
30.8000	3.95E-04	-355903.	6908.	2.08E-05	0.00	4.15E+11	-40.1224	487872.	0.00
31.2000	4.85E-04	-323206.	6692.	1.68E-05	0.00	4.15E+11	-49.8846	494208.	0.00
31.6000	5.56E-04	-291658.	6433.	1.33E-05	0.00	4.16E+11	-58.0146	500544.	0.00
32.0000	6.12E-04	-261447.	6139.	1.01E-05	0.00	4.16E+11	-64.6268	506880.	0.00
32.4000	6.53E-04	-232725.	5816.	7.23E-06	0.00	4.16E+11	-69.8368	513216.	0.00
32.8000	6.81E-04	-205612.	5472.	4.70E-06	0.00	4.16E+11	-73.7595	519552.	0.00
33.2000	6.98E-04	-180199.	5111.	2.48E-06	0.00	4.16E+11	-76.5084	525888.	0.00
33.6000	7.05E-04	-156548.	4740.	5.33E-07	0.00	4.16E+11	-78.1946	532224.	0.00
34.0000	7.03E-04	-134699.	4362.	-1.15E-06	0.00	4.16E+11	-78.9256	538560.	0.00
34.4000	6.94E-04	-114668.	3984.	-2.59E-06	0.00	4.16E+11	-78.8045	544896.	0.00
34.8000	6.79E-04	-96453.	3608.	-3.81E-06	0.00	4.16E+11	-77.9292	551232.	0.00
35.2000	6.58E-04	-80034.	3237.	-4.83E-06	0.00	4.16E+11	-76.3918	557568.	0.00
35.6000	6.32E-04	-65374.	2876.	-5.67E-06	0.00	4.16E+11	-74.2781	563904.	0.00
36.0000	6.03E-04	-52426.	2526.	-6.35E-06	0.00	4.16E+11	-71.6669	570240.	0.00
36.4000	5.71E-04	-41129.	2189.	-6.89E-06	0.00	4.16E+11	-68.6302	576576.	0.00
36.8000	5.37E-04	-31413.	1868.	-7.30E-06	0.00	4.16E+11	-65.2324	582912.	0.00
37.2000	5.01E-04	-23201.	1563.	-7.62E-06	0.00	4.16E+11	-61.5307	589248.	0.00
37.6000	4.64E-04	-16406.	1277.	-7.85E-06	0.00	4.16E+11	-57.5746	595584.	0.00
38.0000	4.26E-04	-10937.	1011.	-8.01E-06	0.00	4.16E+11	-53.4062	601920.	0.00
38.4000	3.87E-04	-6699.	765.1846	-8.11E-06	0.00	4.16E+11	-49.0604	608256.	0.00
38.8000	3.48E-04	-3591.	540.4843	-8.17E-06	0.00	4.16E+11	-44.5647	614592.	0.00
39.2000	3.09E-04	-1510.	337.6725	-8.20E-06	0.00	4.16E+11	-39.9401	620928.	0.00
39.6000	2.69E-04	-349.6899	157.3341	-8.21E-06	0.00	4.16E+11	-35.2009	627264.	0.00
40.0000	2.30E-04	0.00	0.00	-8.21E-06	0.00	4.16E+11	-30.3550	316800.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 16:

```
Pile-head deflection              =     2.00000000 inches
Computed slope at pile head       =       0.000000 radians
Maximum bending moment            =      -8699891. inch-lbs
Maximum shear force               =        204283. lbs
Depth of maximum bending moment   =       0.000000 feet below pile head
```

Depth of maximum shear force = 0.000000 feet below pile head
Number of iterations = 52
Number of zero deflection points = 2

Summary of Pile-head Responses for Conventional Analyses

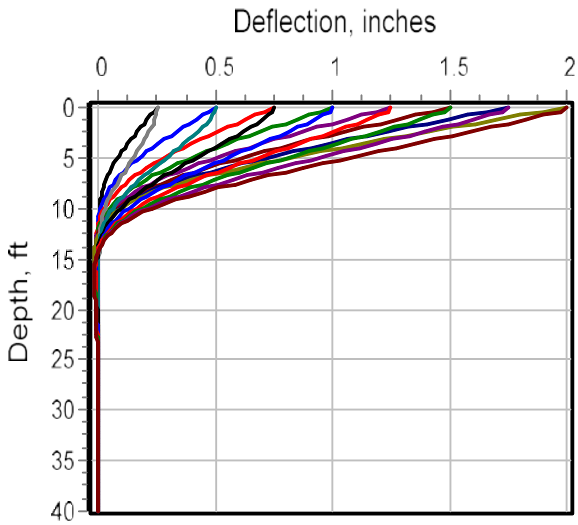
Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	y, in	0.2500	M, in-lb	0.00	0.00	0.2500	-0.00294	58541.	2937862.
2	y, in	0.5000	M, in-lb	0.00	0.00	0.5000	-0.00574	77708.	4317483.
3	y, in	0.7500	M, in-lb	0.00	0.00	0.7500	-0.00833	93139.	5573315.
4	y, in	1.0000	M, in-lb	0.00	0.00	1.0000	-0.01063	105699.	6668050.
5	y, in	1.2500	M, in-lb	0.00	0.00	1.2500	-0.01312	113958.	7409546.
6	y, in	1.5000	M, in-lb	0.00	0.00	1.5000	-0.01553	119531.	7899664.
7	y, in	1.7500	M, in-lb	0.00	0.00	1.7500	-0.01797	124001.	8288075.
8	y, in	2.0000	M, in-lb	0.00	0.00	2.0000	-0.02047	125863.	8448198.
9	y, in	0.2500	S, rad	0.00	0.00	0.2500	0.00	131187.	-6791776.
10	y, in	0.5000	S, rad	0.00	0.00	0.5000	0.00	159022.	-8444631.
11	y, in	0.7500	S, rad	0.00	0.00	0.7500	0.00	173188.	-8699945.
12	y, in	1.0000	S, rad	0.00	0.00	1.0000	0.00	184282.	-8700598.
13	y, in	1.2500	S, rad	0.00	0.00	1.2500	0.00	192787.	-8700048.
14	y, in	1.5000	S, rad	0.00	0.00	1.5000	0.00	197956.	-8699945.
15	y, in	1.7500	S, rad	0.00	0.00	1.7500	0.00	202081.	-8699938.
16	y, in	2.0000	S, rad	0.00	0.00	2.0000	0.00	204283.	-8699891.

Maximum pile-head deflection = 2.0000000000 inches
Maximum pile-head rotation = -0.0204650146 radians = -1.172559 deg.

The analysis ended normally.


Deflection, inches
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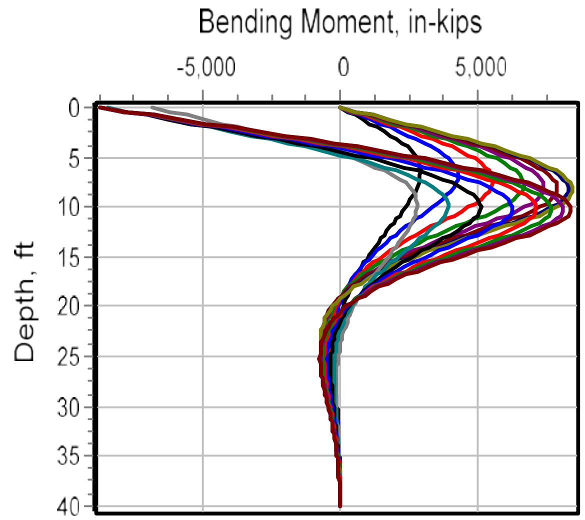
1
1.5
2
Depth, ft
0
5
10
15
20
25
30
35
40


Bending Moment, in-kips
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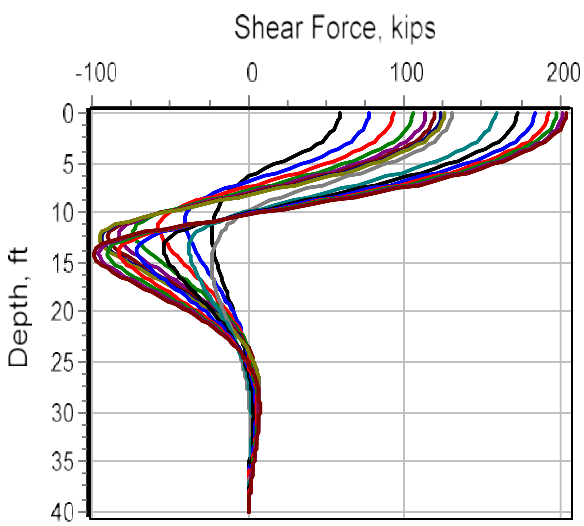
0
5,000
Depth, ft
0
5
10
15
20
25
30
35
40


Shear Force, kips
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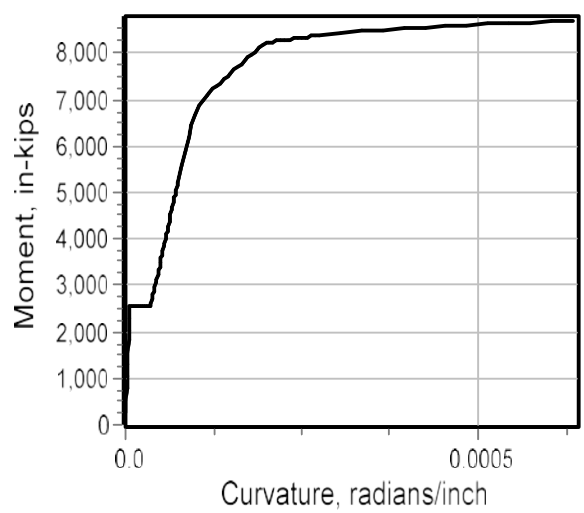
0
100
200
Depth, ft
0
5
10
15
20
25
30
35
40


Moment, in-kips
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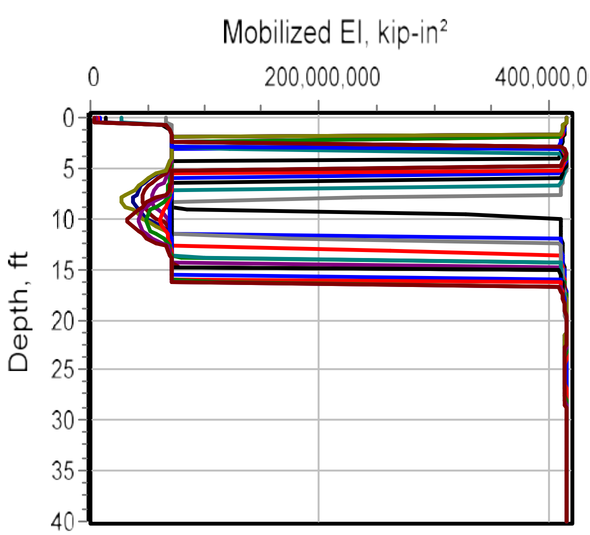
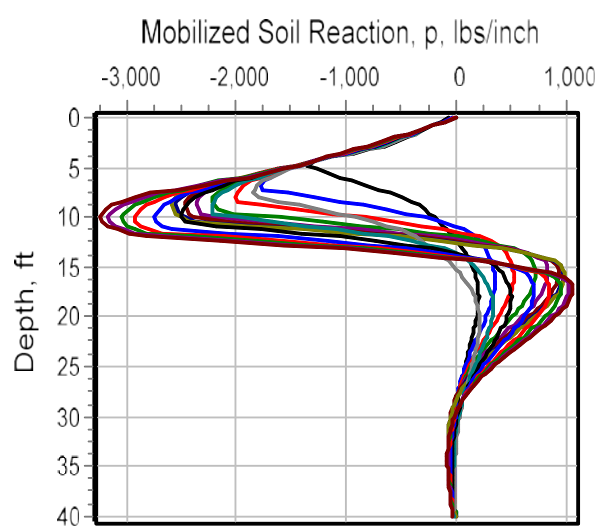
2,000
3,000
4,000
5,000
6,000
7,000
8,000
0.0
0.0005
Curvature, radians/inch


Mobilized EI, kip-in²
0
200,000,000
400,000,0
Depth, ft
0
5
10
15
20
25
30
35
40


Mobilized Soil Reaction, p, lbs/inch
-3,000
-2,000
-1,000
0
1,000
Depth, ft
0
5
10
15
20
25
30
35
40

APPENDIX G

GBA IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL ENGINEERING REPORT

Leighton

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept* *responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

APPENDIX B2

Addendum to Geotechnical Exploration Report

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

October 30, 2020

(Revised November 10, 2020)

Project No. 12915.001

CAA ICON
5075 South Syracuse Street, Suite 700
Denver, Colorado 80237

Attention: Mr. Charlie Thornton

Subject: Addendum to Geotechnical Exploration Report
Proposed Ice Hockey Arena
Varner Road between Cook Street and Washington Street
Coachella Valley, Palm Desert
Riverside County, California

References: Attached

In accordance with your request, Leighton Consulting, Inc. (Leighton) prepared this addendum to the referenced geotechnical exploration report (Leighton, 2020) to provide site-specific seismic design parameters for the subject project. Leighton performed a site-specific ground motion study in accordance with the requirements of the 2019 California Building Code (CBC) and ASCE 7-16. The seismic design parameters are summarized in the following tables and details of our ground motion study are presented in the following sections.

Seismic Design Parameters

The 2019 CBC/ASCE 7-16 code-based and site-specific seismic design parameters are presented in the following tables.

17781 Cowan ▪ Irvine, CA 92614-6009
949.250.1421 ▪ 949.250.1114 Fax

Code-Based 2019 CBC Seismic Design Parameters

Categorization /Coefficient	Design Value
Site Latitude	33.7798°
Site Longitude	-116.3410°
Site Class	D
Mapped Spectral Response Acceleration at Short Period (0.2 sec), S_S	1.981
Mapped Spectral Response Acceleration at Long Period (1 sec), S_1	0.785
Short Period (0.2 sec)Site Coefficient, F_a	1.0
Long Period (1 sec) Site Coefficient, F_v	null[1]
Adjusted Spectral Response Acceleration at Short Period (0.2 sec), S_{MS}	1.981
Adjusted Spectral Response Acceleration at Long Period (1 sec), S_{M1}	null[1]
Design Spectral Response Acceleration at Short Period (0.2 sec), S_{DS}	1.32
Design Spectral Response Acceleration at Long Period (1 sec), S_{D1}	null[1]
Design Peak Ground Acceleration, PGA_M	0.90

[1]See Section 11.4.8 of ASCE 7-16

Site-Specific 2019 CBC Seismic Design Parameters

Categorization/Coefficient	Design Value
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	2.270g
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	1.951g
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	1.513g
Design Spectral Response Acceleration at 1s Period, S_{D1}	1.301g

Attenuation Relationships

Attenuation relationships (Ground Motion Prediction Equations or GMPEs) describe the relation of ground motion levels with earthquake magnitude and distance (distance between the site and seismic source), site geology, and subsurface characterization. These relationships can be used to describe the variation of peak ground acceleration and response spectral acceleration with earthquake magnitude and distance, and to also incorporate the local geological conditions and near-source effects.

We used four GMPEs: Abrahamson et.al. (2014) NGA West 2, Boore et. al. (2014) NGA West 2, Campbell and Bozorgnia (2014) NGA West 2, and Chiou and Youngs (2014) NGA West 2. These GMPEs are based on the median rotated direction (RotD50) of horizontal ground motion. Site Class D and an average shear wave velocity in the upper 30 meters equal to 310 meters per second based on the results of our explorations at the site (Leighton 2020) were used with the selected GMPEs.

Design Criteria

The earthquake ground motions considered include the Risk-Targeted Maximum Considered Earthquake (MCE_R) and the Design Earthquake (DE). The MCE_R is defined as the maximum component of horizontal ground motion with a 2% probability of exceedance in 50 years (2,475-year average return interval) adjusted for targeted risk (ASCE 7-16). The DE ground motions are defined as 2/3 of MCE_R ground motions (ASCE 7-16).

Methodology

The 2019 CBC requires the procedures of Chapter 21, Site-Specific Ground Motion Procedures for Seismic Design, of ASCE 7-16 be used to determine site-specific seismic response spectra and design parameters. We performed both deterministic and probabilistic seismic hazard analyses (DSHA and PSHA) and process the results in accordance with the procedures in Chapter 21 of ASCE 7-16.

Probabilistic Seismic Hazard Analysis

A PSHA is a mathematical process based on probability and statistics that is used to estimate the mean number of events per year in which the level of some ground motion parameter, Z (peak ground acceleration and/or spectral response acceleration in this study), exceeds a specified value z at the project site. This mean number of events per year, also referred to as "annual frequency of exceedance," is designated as "v(Z≥z)." The inverse of this number is called the "average return period (ARP)," which is expressed in terms of years. Having the annual frequency of exceedance of a certain level of acceleration or spectral response acceleration, v(Z≥z), the probability of exceeding that level Pr(Z≥z), within any time period of interest, t, is then obtained assuming a Poisson Distribution as follows:

$$\Pr(Z \geq z) = 1 - e^{-v(Z \geq z)t}$$

PSHA procedures require the specification of probability functions to describe the uncertainty in both the time and location of future earthquake occurrences and the uncertainty in the ground motion level that will be produced at the site.

The basic key elements of a PSHA are:

- Defining the location, geometry, and characteristics of earthquake sources relative the site;
- Specifying an earthquake recurrence relationship for various magnitudes on each source up to the maximum magnitude;
- Selecting appropriate attenuation relationships, which relate the variation of the earthquake ground motion parameter with earthquake distance, directivity, magnitude, site geology, and subsurface characterization; and
- Determining the probability of exceedance of peak ground accelerations and/or response spectral levels (i.e., seismic hazards) utilizing the above input parameters.

The frequencies of exceedance of peak ground accelerations and spectral response accelerations at the site were calculated by evaluating the following:

- The annual frequency of earthquakes of various magnitudes on a fault obtained from the fault recurrence relationships;
- Given an earthquake of a certain magnitude on a certain fault, the probability distribution of the location of the earthquake on the fault was obtained using the selected rupture area versus magnitude relationship and assuming equal likelihood of rupture along the length and some prescribed probabilities along the depth of the fault; and
- Given an earthquake of a certain magnitude occurring at a certain distance from the site, the probability distribution of ground motion at the site was obtained from the selected attenuation relationships.

The above process is repeated a sufficient number of times to cover all the sources, then summed to obtain the total seismic hazard at the site. This process results in a relationship between ground motion level and the probability of being exceeded.

The computer program Hazard Spectrum Application (OpenSHA, 2020) was used to perform the seismic hazard analysis.

Deterministic Seismic Hazard Analysis

The DSHA consists of a four-step process (Reiter, 1990):

- Defining the location, geometry, and characteristics of earthquake sources relative to the site;
- Determination of the site-to-source distance for each earthquake source defined relative to the site;
- Selection of the controlling earthquake relative to the site as defined by some ground motion parameter. The controlling earthquake is defined by the seismic scenario based on the above two steps that produces the largest magnitude of the ground motion parameter being used;
- Using the controlling earthquake, the deterministic ground motions at the site is obtained from the selected attenuation relationships; and
- Deterministic ground motions represent the 84th percentile average horizontal component and modified using Shahi and Baker (2014) to represent the maximum component horizontal ground motions.

The NGA-West2 deterministic spreadsheet by the Pacific Earthquake Engineering Research Center (PEER, 2015) was used for the DSHA.

Code-Based General Seismic Response Spectra and Design Parameters

Seismic response spectra and design parameters were computed as determined by Chapter 11 of ASCE 7-16. These values are used to process the site-specific design response spectrum to ensure the site-specific DE and MCE_R response spectra meet or exceed minimum requirements. The code-based seismic design parameters were derived by using the SEAOC/OSHPD Seismic Design Maps Tool (https://seismicmaps.org/) to obtain the design values from the United States Geological Survey (USGS).

The code-based parameters determined from the referenced online are attached at the end of this addendum.

Site-Specific Response Spectra

The site-specific MCE_R and DE response spectra were developed per the methodology prescribed in Chapter 21 of ASCE 7-16. Site-specific response spectra for MCE_R and DE were computed for a structural damping ratio of 5 percent of critical damping. Targeted risk coefficients were determined from mapped values in ASCE 7-16 to calculate MCE_R.

We used the Shahi and Baker (2014) SaRotD100/SaRotD50 factors to develop the maximum component of horizontal ground motion as required in the definition of ground motion in the current building codes (2019 CBC and ASCE 7-16). These factors enabled us to estimate the maximum horizontal component of ground motion.

Figure 1 presents a graph and table with ordinates of the RotD50 and the maximum component MCE response spectra from the PSHA. The maximum component (MC) factors from Shahi and Baker (2014) are also presented on Figure 1.

Figure 2 presents plots and tables with ordinates of the MCE_R response spectra from the DSHA.

Per Chapter 21.2.3 of ASCE 7-16, the deterministic and probabilistic spectra were compared to establish site-specific maximum component MCE spectra. This step is shown on Figure 3.

Figure 4 shows a comparison of site-specific vs. general code-based spectra for the MCE_R spectrum.

The DE spectrum is shown on Figure 5, which also includes the 80% of the general code-based spectrum floor stipulated in Chapter 21.3 of ASCE 7-16.

Closing

We appreciate the opportunity to be of continued service to CAA ICON. If you have any questions or concerns, please contact us at your convenience. The undersigned can be reached at **(866) *LEIGHTON***, specifically at the phone extensions and e-mail addresses listed below.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

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CD/CK/lr

Attachments: References
Seismic Figures 1-5
U.S. Seismic Design Map

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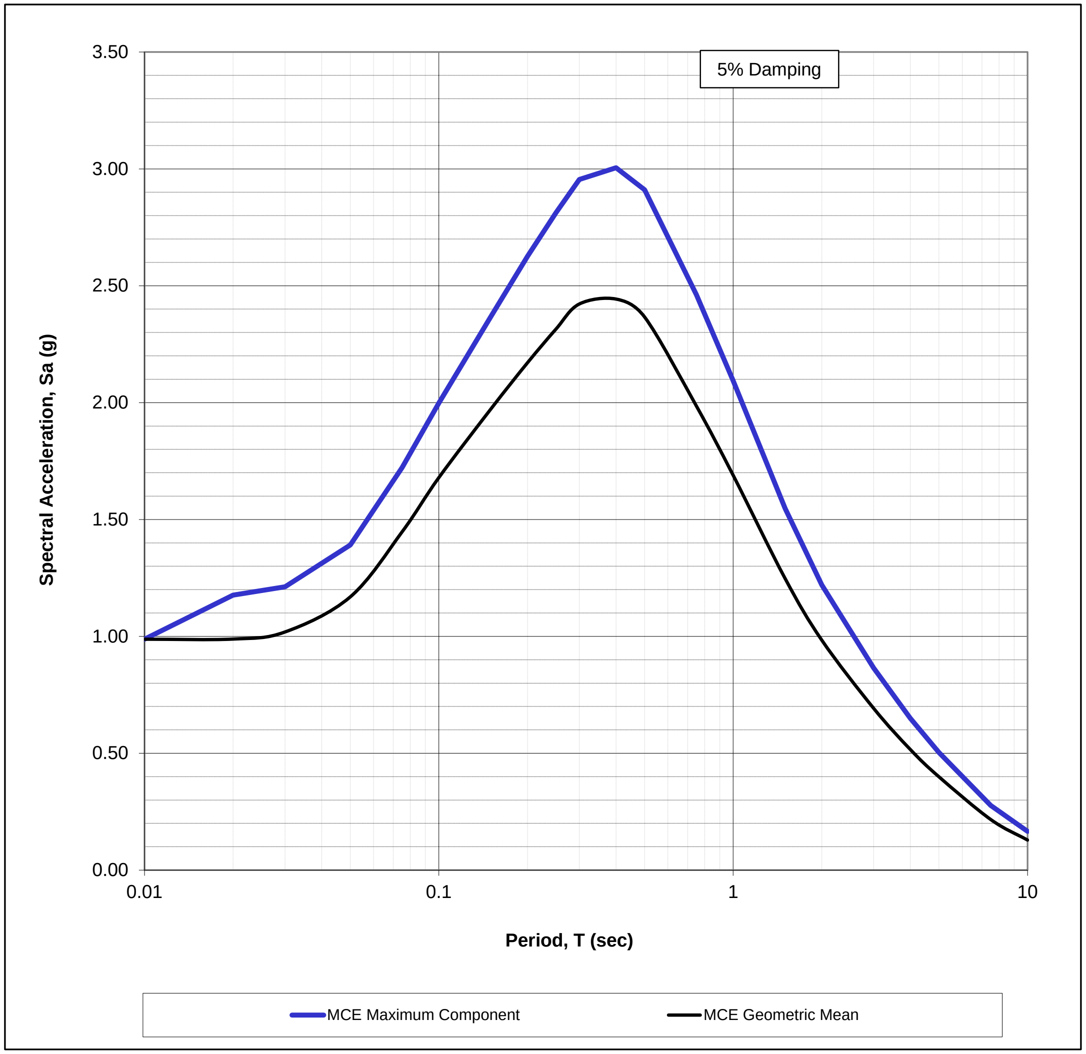
MCE SPECTRA (2,475-YEAR AVERAGE RETURN INTERVAL)

Project: Coachella Valley Ice Hockey Arena

Project Number: 12915.001

Location: Varner Rd. between Cook St. and Washington St, Palm Desert, California

Deaggregated Probabilistic PGA Magnitude
Mw = 7.5



Period T (s)	MCE GEOMEAN Sa (g)	Maximum Component Factor	MCE MAX COMP Site-Specific Sa (g)
0.01	0.988	1.00	0.988
0.02	0.989	1.19	1.176
0.03	1.019	1.19	1.212
0.05	1.169	1.19	1.391
0.075	1.447	1.19	1.722
0.10	1.679	1.19	1.999
0.15	1.972	1.20	2.366
0.20	2.171	1.21	2.626
0.25	2.315	1.22	2.812
0.30	2.422	1.22	2.955
0.40	2.443	1.23	3.005
0.50	2.366	1.23	2.910
0.75	1.985	1.24	2.462
1.00	1.689	1.24	2.094
1.50	1.248	1.24	1.548
2.00	0.984	1.24	1.220
3.00	0.692	1.25	0.865
4.00	0.516	1.26	0.650
5.00	0.399	1.26	0.503
7.50	0.216	1.28	0.277
10.00	0.129	1.29	0.166

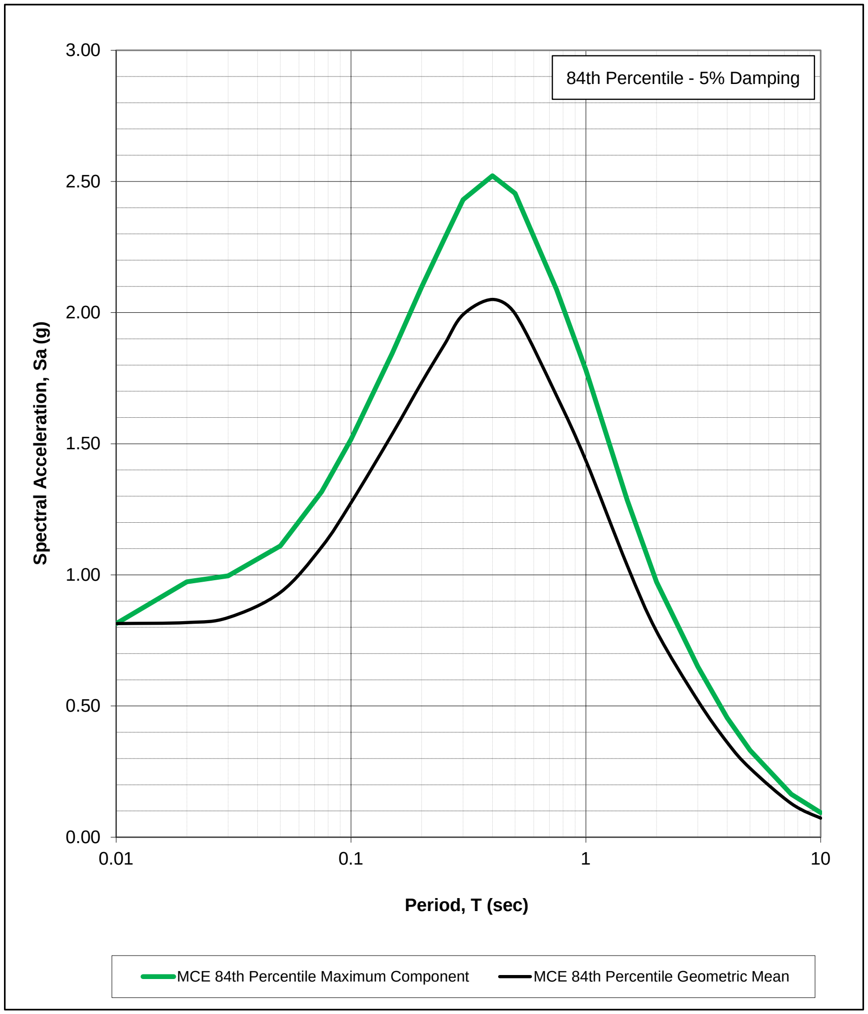
Figure 1

MCE DETERMINISTIC SPECTRA

Project: Coachella Valley Ice Hockey Arena

Project Number: 12915.001

Location: Varner Rd. between Cook St. and Washington St, Palm Desert, California



DETERMINISTIC PGA MAGNITUDE				
MC FACTOR		DSHA - 84TH PERCENTILE		
Period T (s)	Maximum Component Factor	Period T (s)	MCE GEOMEAN Sa (g)	DETERMINISTIC MCE_R Sa (g)
0.01	1.00	0.01	0.814	0.814
0.02	1.19	0.02	0.818	0.974
0.03	1.19	0.03	0.837	0.996
0.05	1.19	0.05	0.933	1.110
0.075	1.19	0.075	1.106	1.317
0.10	1.19	0.10	1.275	1.517
0.15	1.20	0.15	1.538	1.845
0.20	1.21	0.20	1.734	2.098
0.25	1.22	0.25	1.878	2.282
0.30	1.22	0.30	1.992	2.431
0.40	1.23	0.40	2.050	2.522
0.50	1.23	0.50	1.995	2.454
0.75	1.24	0.75	1.684	2.088
1.00	1.24	1.00	1.436	1.781
1.50	1.24	1.50	1.036	1.285
2.00	1.24	2.00	0.785	0.973
3.00	1.25	3.00	0.520	0.650
4.00	1.26	4.00	0.361	0.455
5.00	1.26	5.00	0.263	0.332
7.50	1.28	7.50	0.128	0.164
10.00	1.29	10.00	0.073	0.094

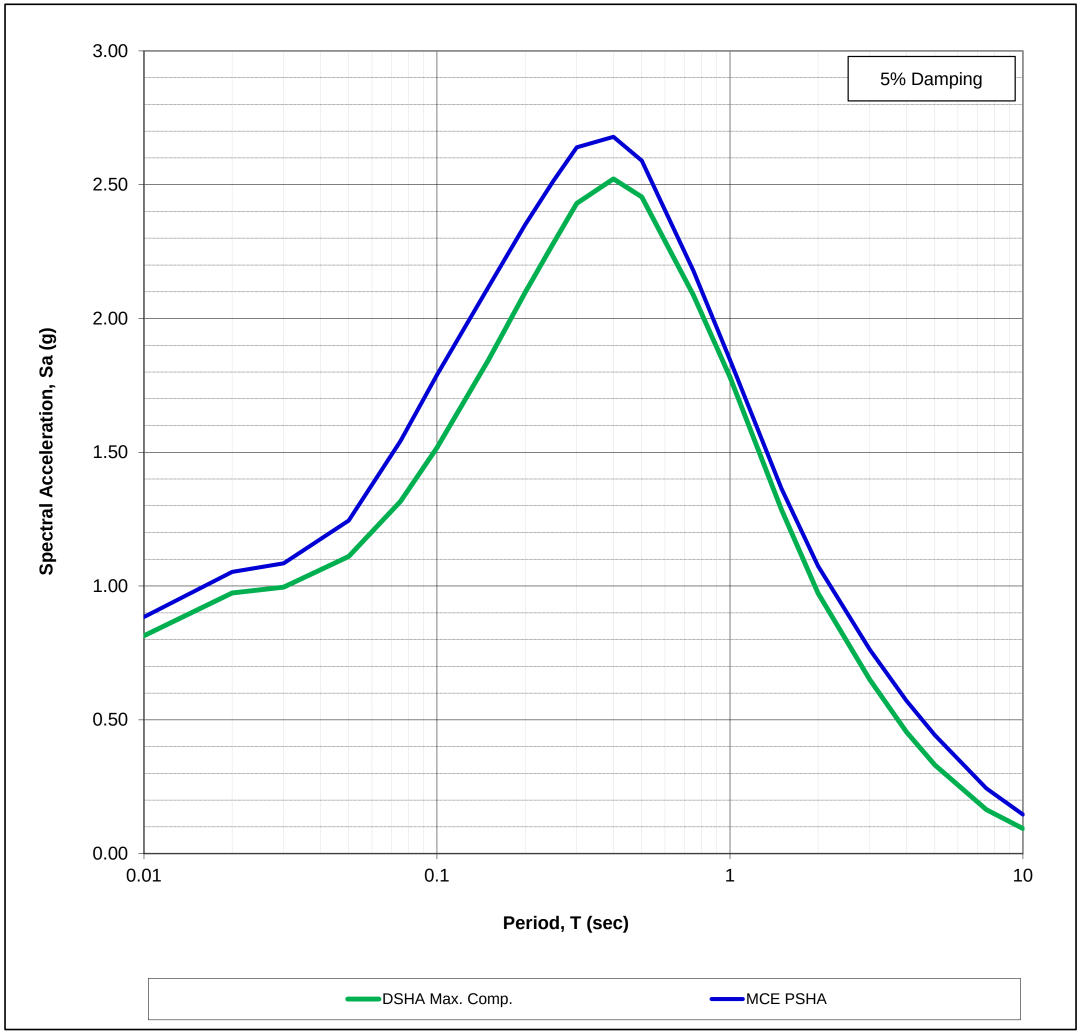
Figure 2

MCE DETERMINISTIC SPECTRA COMPARISON - MAXIMUM HORIZONTAL COMPONENT

Project: Coachella Valley Ice Hockey Arena

Project Number: 12915.001

Location: Varner Rd. between Cook St. and Washington St, Palm Desert, California



DSHA		PSHA			
Period T (s)	MCE$_R$ Sa (g)	Period T (s)	MCE MAX COMP. Sa (g)	Site Risk Coefficient (C_R)	MCE$_R$ Sa (g)
0.01	0.814	0.01	0.988	0.895	0.884
0.02	0.974	0.02	1.176	0.895	1.053
0.03	0.996	0.03	1.212	0.895	1.085
0.05	1.110	0.05	1.391	0.895	1.245
0.075	1.317	0.075	1.722	0.895	1.541
0.10	1.517	0.10	1.999	0.895	1.789
0.15	1.845	0.15	2.366	0.895	2.118
0.20	2.098	0.20	2.626	0.895	2.351
0.25	2.282	0.25	2.812	0.894	2.515
0.30	2.431	0.30	2.955	0.893	2.639
0.40	2.522	0.40	3.005	0.892	2.679
0.50	2.454	0.50	2.910	0.890	2.590
0.75	2.088	0.75	2.462	0.885	2.179
1.00	1.781	1.00	2.094	0.881	1.845
1.50	1.285	1.50	1.548	0.881	1.363
2.00	0.973	2.00	1.220	0.881	1.075
3.00	0.650	3.00	0.865	0.881	0.762
4.00	0.455	4.00	0.650	0.881	0.572
5.00	0.332	5.00	0.503	0.881	0.443
7.50	0.164	7.50	0.277	0.881	0.244
10.00	0.094	10.00	0.166	0.881	0.146

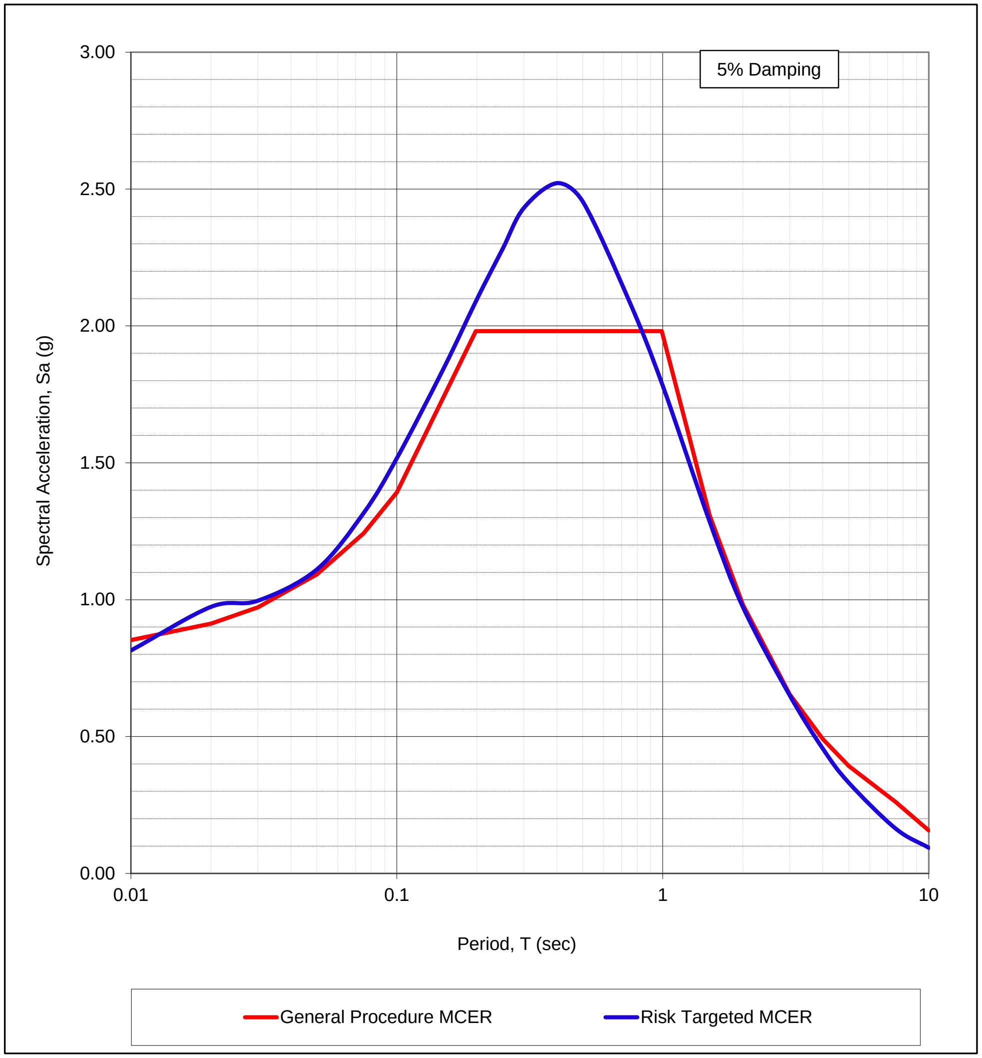
Figure 3

RISK TARGETED MAXIMUM CONSIDERED EARTHQUAKE (MCE_R) RESPONSE SPECTRUM

Project: Coachella Valley Ice Hockey Arena

Project Number: 12915.001

Location: Varner Rd. between Cook St. and Washington St, Palm Desert, California



SITE-SPECIFIC vs. GENERAL CODE-BASED SPECTRA

Period T (s)	DETERM. MCE_R Sa (g)	PROB. MCE_R Sa (g)	**Risk TGT MCE_R Sa (g)**	General Procedure MCE_R Sa (g)
0.01	0.814	0.884	**0.814**	0.852
0.02	0.974	1.053	**0.974**	0.912
0.03	0.996	1.085	**0.996**	0.972
0.05	1.110	1.245	**1.110**	1.092
0.075	1.317	1.541	**1.317**	1.242
0.10	1.517	1.789	**1.517**	1.392
0.15	1.845	2.118	**1.845**	1.692
0.20	2.098	2.351	**2.098**	1.981
0.25	2.282	2.515	**2.282**	1.981
0.30	2.431	2.639	**2.431**	1.981
0.40	2.522	2.679	**2.522**	1.981
0.50	2.454	2.590	**2.454**	1.981
0.75	2.088	2.179	**2.088**	1.981
1.00	1.781	1.845	**1.781**	1.963
1.50	1.285	1.363	**1.285**	1.308
2.00	0.973	1.075	**0.973**	0.981
3.00	0.650	0.762	**0.650**	0.654
4.00	0.455	0.572	**0.455**	0.491
5.00	0.332	0.443	**0.332**	0.393
7.50	0.164	0.244	**0.164**	0.262
10.00	0.094	0.146	**0.094**	0.157

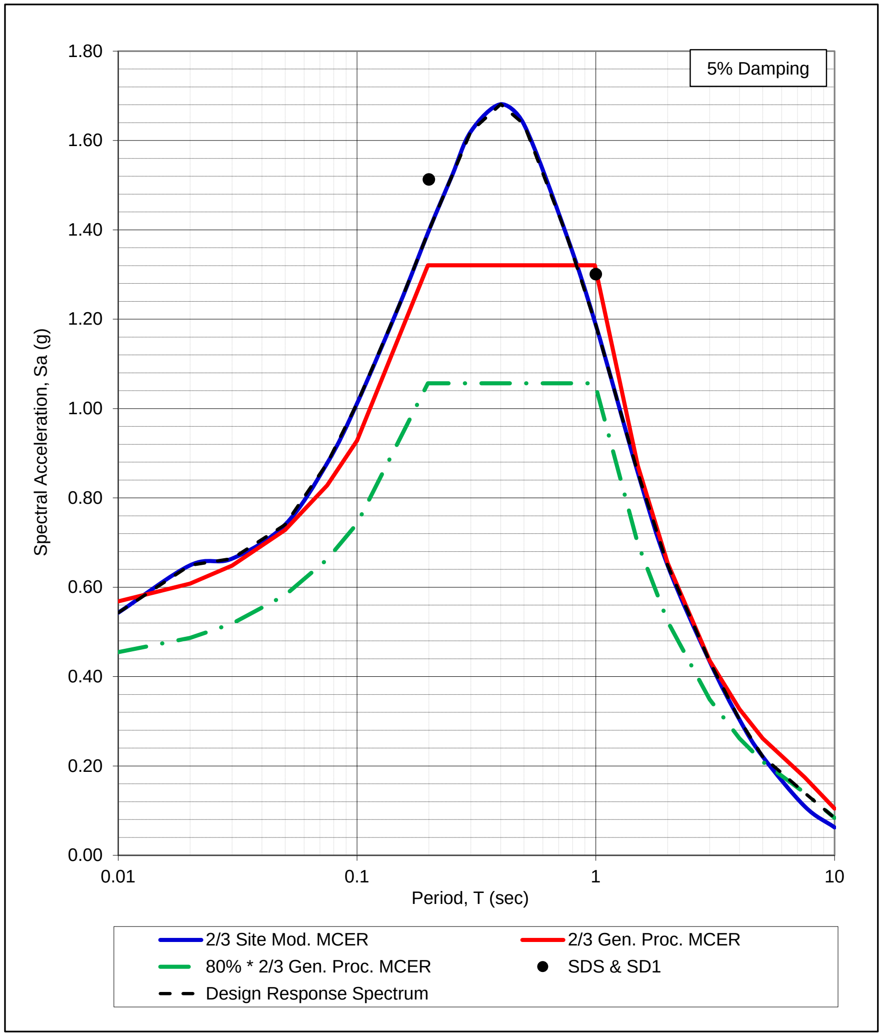
Figure 4

ASCE 7-16 DESIGN RESPONSE SPECTRUM AND SITE-SPECIFIC S_{DS} AND S_{D1}

Project: Coachella Valley Ice Hockey Arena

Project Number: 12915.001

Location: Varner Rd. between Cook St. and Washington St, Palm Desert, California



	CODE BASED GENERAL PROCEDURE SPECTRUM			RISK TGT SPECTRUM	DESIGN RESPONSE SPECTRUM
Period T (s)	GENERAL PROC. MCER CURVE Sa (g)	2/3 GENERAL PROC. MCER CURVE Sa (g)	80% * 2/3 GENERAL PROC. MCER CURVE Sa (g)	2/3*MCE_R CURVE Sa (g)	MAX of 2/3 MCE_R and 80% * 2/3 GENERAL PROC. MCER Sa (g)
0.01	0.852	0.568	0.455	0.543	**0.543**
0.02	0.912	0.608	0.487	0.649	**0.649**
0.03	0.972	0.648	0.519	0.664	**0.664**
0.05	1.092	0.728	0.583	0.740	**0.740**
0.075	1.242	0.828	0.663	0.878	**0.878**
0.10	1.392	0.928	0.743	1.011	**1.011**
0.15	1.692	1.128	0.903	1.230	**1.230**
0.20	1.981	1.321	1.057	1.398	**1.398**
0.25	1.981	1.321	1.057	1.521	**1.521**
0.30	1.981	1.321	1.057	1.620	**1.620**
0.40	1.981	1.321	1.057	1.681	**1.681**
0.50	1.981	1.321	1.057	1.636	**1.636**
0.75	1.981	1.321	1.057	1.392	**1.392**
1.00	1.963	1.308	1.047	1.187	**1.187**
1.50	1.308	0.872	0.698	0.857	**0.857**
2.00	0.981	0.654	0.523	0.649	**0.649**
3.00	0.654	0.436	0.349	0.434	**0.434**
4.00	0.491	0.327	0.262	0.303	**0.303**
5.00	0.393	0.262	0.209	0.221	**0.221**
7.50	0.262	0.174	0.140	0.109	**0.140**
10.00	0.157	0.105	0.084	0.062	**0.084**

S_{DS} = 1.513 g

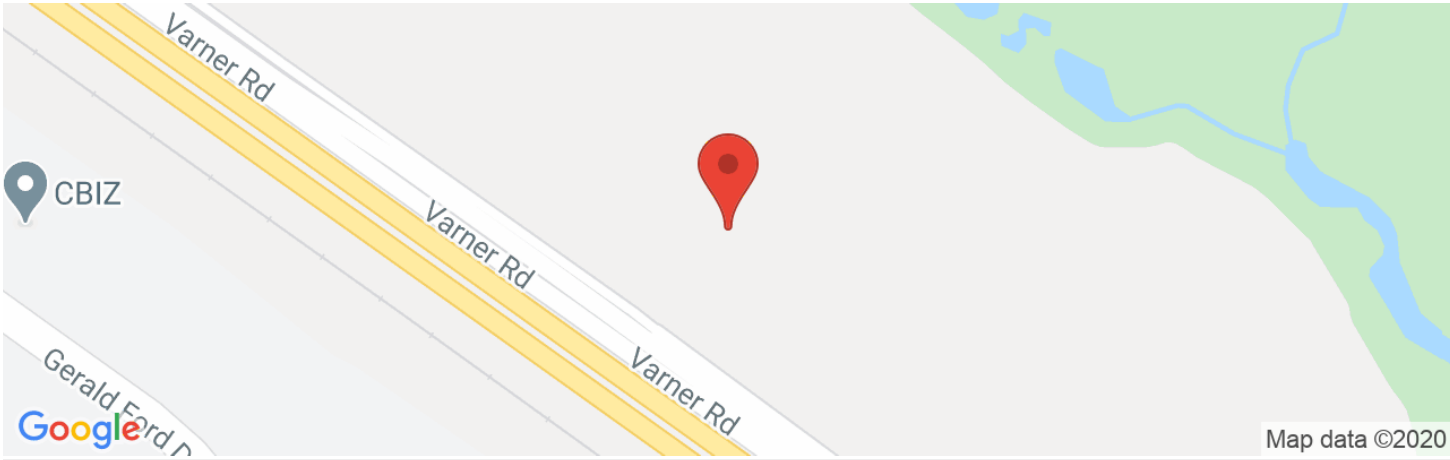
S_{D1} = 1.301 g

Note : Based on ASCE 7-16 Section 21.4, the parameter S_{DS} shall be taken as 90% of the maximum spectral acceleration, Sa, obtained from the site-specific spectrum, at any period within the range from 0.2 to 5 s, inclusive. The parameter S_{D1} shall be taken as the maximum value of the product, TSa, for periods from 1 to 2 s for sites with Vs_{30} > 1,200 ft/s (Vs_{30} > 365.76 m/s) and for periods from 1 to 5 s for sites with $Vs_{30} \le$ 1,200 ft/s ($Vs_{30} \le$ 365.76 m/s). The design Sa shall not be less than 80% of 2/3 of the general procedure (Sec 11.4.6)

Figure 5

12915.001

Latitude, Longitude: 33.7798, -116.3410



Date	10/15/2020, 2:39:56 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.981	MCE_R ground motion. (for 0.2 second period)
S_1	0.785	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.981	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.32	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.818	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.9	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.224	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.484	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.981	Factored deterministic acceleration value. (0.2 second)
S1RT	0.882	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	1.002	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.785	Factored deterministic acceleration value. (1.0 second)
PGAd	0.818	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.895	Mapped value of the risk coefficient at short periods
C_{R1}	0.881	Mapped value of the risk coefficient at a period of 1 s

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APPENDIX C

Greenhouse Gas Model Outputs

Adopted NorthStar Specific Plan - Operation

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	230.00	1000sqft	16.00	230,000.00	0
Industrial Park	1,200.00	1000sqft	69.60	1,200,000.00	0
Golf Course	18.00	Hole	245.90	0.00	0
Hotel	350.00	Room	17.60	508,200.00	0
Apartments Low Rise	216.00	Dwelling Unit	9.95	216,000.00	618
Apartments Mid Rise	550.00	Dwelling Unit	33.20	550,000.00	1573
Single Family Housing	54.00	Dwelling Unit	7.30	97,200.00	154
Regional Shopping Center	400.00	1000sqft	36.20	400,000.00	0
Regional Shopping Center	100.00	1000sqft	20.00	100,000.00	0

1.2 Other Project Characteristics

Urbanization Urban
Wind Speed (m/s) 2.4
Precipitation Freq (Days) 28

Climate Zone 10
Operational Year 2023

Utility Company Imperial Irrigation District

CO2 Intensity (lb/MWhr) 1270.9
CH4 Intensity (lb/MWhr) 0.029
N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total of 455.75 acres.

Construction Phase - Operation only.

Off-road Equipment - Operation only.

Vehicle Trips - Based on project traffic memo.

Woodstoves - No woodstoves.

Mobile Land Use Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	500.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	183.60	0.00
tblFireplaces	NumberGas	467.50	0.00
tblFireplaces	NumberGas	45.90	0.00
tblFireplaces	NumberNoFireplace	21.60	0.00
tblFireplaces	NumberNoFireplace	55.00	0.00
tblFireplaces	NumberNoFireplace	5.40	0.00
tblFireplaces	NumberWood	10.80	0.00
tblFireplaces	NumberWood	27.50	0.00
tblFireplaces	NumberWood	2.70	0.00

tblLandUse	LotAcreage	5.28	16.00
tblLandUse	LotAcreage	27.55	69.60
tblLandUse	LotAcreage	125.66	245.90
tblLandUse	LotAcreage	11.67	17.60
tblLandUse	LotAcreage	13.50	9.95
tblLandUse	LotAcreage	14.47	33.20
tblLandUse	LotAcreage	17.53	7.30
tblLandUse	LotAcreage	2.30	20.00
tblLandUse	LotAcreage	9.18	36.20
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	6.39	0.00
tblVehicleTrips	ST_TR	2.46	178.23
tblVehicleTrips	ST_TR	40.63	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	5.86	0.00
tblVehicleTrips	SU_TR	1.05	178.23
tblVehicleTrips	SU_TR	39.53	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	6.65	0.00
tblVehicleTrips	WD_TR	11.03	178.23
tblVehicleTrips	WD_TR	35.74	0.00
tblVehicleTrips	WD_TR	8.17	0.00

tblVehicleTrips	WD_TR	6.83	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWoodstoves	NumberCatalytic	10.80	0.00
tblWoodstoves	NumberCatalytic	27.50	0.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	10.80	0.00
tblWoodstoves	NumberNoncatalytic	27.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.9168	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062
Energy	0.2681	2.3987	1.7637	0.0146		0.1852	0.1852		0.1852	0.1852	0.0000	21,780.7136	21,780.7136	0.4873	0.1390	21,834.3025
Mobile	10.4797	75.1095	131.3307	0.6306	50.4141	0.3589	50.7730	13.5054	0.3345	13.8399	0.0000	58,506.7184	58,506.7184	2.5536	0.0000	58,570.5581
Waste						0.0000	0.0000		0.0000	0.0000	575.7697	0.0000	575.7697	34.0270	0.0000	1,426.4450

Water						0.0000	0.0000		0.0000	0.0000	132.5232	4,622.2835	4,754.8067	13.7169	0.3432	5,200.0072
Total	**24.6646**	**77.6060**	**141.5820**	**0.6456**	**50.4141**	**0.5910**	**51.0051**	**13.5054**	**0.5667**	**14.0721**	**708.2929**	**84,923.5859**	**85,631.8787**	**50.7982**	**0.4822**	**87,045.5189**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.9168	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062
Energy	0.2681	2.3987	1.7637	0.0146		0.1852	0.1852		0.1852	0.1852	0.0000	21,780.7136	21,780.7136	0.4873	0.1390	21,834.3025
Mobile	10.4797	75.1095	131.3307	0.6306	50.4141	0.3589	50.7730	13.5054	0.3345	13.8399	0.0000	58,506.7184	58,506.7184	2.5536	0.0000	58,570.5581
Waste						0.0000	0.0000		0.0000	0.0000	575.7697	0.0000	575.7697	34.0270	0.0000	1,426.4450
Water						0.0000	0.0000		0.0000	0.0000	106.0186	3,904.4901	4,010.5087	10.9782	0.2756	4,367.0777
Total	**24.6646**	**77.6060**	**141.5820**	**0.6456**	**50.4141**	**0.5910**	**51.0051**	**13.5054**	**0.5667**	**14.0721**	**681.7882**	**84,205.7925**	**84,887.5807**	**48.0596**	**0.4145**	**86,212.5894**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.74**	**0.85**	**0.87**	**5.39**	**14.03**	**0.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/11/2021	2/10/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.4797	75.1095	131.3307	0.6306	50.4141	0.3589	50.7730	13.5054	0.3345	13.8399	0.0000	58,506.7184	58,506.7184	2.5536	0.0000	58,570.5581
Unmitigated	10.4797	75.1095	131.3307	0.6306	50.4141	0.3589	50.7730	13.5054	0.3345	13.8399	0.0000	58,506.7184	58,506.7184	2.5536	0.0000	58,570.5581

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Apartments Mid Rise	0.00	0.00	0.00		
General Office Building	40,993.57	40,993.57	40993.57	132,059,183	132,059,183

Golf Course	0.00	0.00	0.00		
Hotel	0.00	0.00	0.00		
Industrial Park	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	40,993.57	40,993.57	40,993.57	132,059,183	132,059,183

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Apartments Mid Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Office Building	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Golf Course	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Hotel	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Industrial Park	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Regional Shopping Center	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Single Family Housing	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,127.3471	19,127.3471	0.4365	0.0903	19,165.1684
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,127.3471	19,127.3471	0.4365	0.0903	19,165.1684
NaturalGas Mitigated	0.2681	2.3987	1.7637	0.0146		0.1852	0.1852		0.1852	0.1852	0.0000	2,653.3665	2,653.3665	0.0509	0.0487	2,669.1341
NaturalGas Unmitigated	0.2681	2.3987	1.7637	0.0146		0.1852	0.1852		0.1852	0.1852	0.0000	2,653.3665	2,653.3665	0.0509	0.0487	2,669.1341

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	3.36409e+006	0.0181	0.1550	0.0660	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	179.5208	179.5208	3.4400e-003	3.2900e-003	180.5876
Apartments Mid Rise	8.13674e+006	0.0439	0.3749	0.1595	2.3900e-003		0.0303	0.0303		0.0303	0.0303	0.0000	434.2077	434.2077	8.3200e-003	7.9600e-003	436.7879
General Office Building	798100	4.3000e-003	0.0391	0.0329	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	42.5897	42.5897	8.2000e-004	7.8000e-004	42.8427
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.04971e+007	0.1645	1.4950	1.2558	8.9700e-003		0.1136	0.1136		0.1136	0.1136	0.0000	1,627.4404	1,627.4404	0.0312	0.0298	1,637.1115
Industrial Park	4.164e+006	0.0225	0.2041	0.1715	1.2200e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.2069	222.2069	4.2600e-003	4.0700e-003	223.5274

Regional Shopping Center	222000	1.2000e-003	0.0109	9.1400e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8468	11.8468	2.3000e-004	2.2000e-004	11.9172
Regional Shopping Center	888000	4.7900e-003	0.0435	0.0366	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.3871	47.3871	9.1000e-004	8.7000e-004	47.6687
Single Family Housing	1.65219e+006	8.9100e-003	0.0761	0.0324	4.9000e-004		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.0000	88.1673	88.1673	1.6900e-003	1.6200e-003	88.6912
Total		**0.2681**	**2.3987**	**1.7637**	**0.0146**		**0.1852**	**0.1852**		**0.1852**	**0.1852**	**0.0000**	**2,653.3665**	**2,653.3665**	**0.0509**	**0.0487**	**2,669.1341**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	3.36409e+006	0.0181	0.1550	0.0660	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	179.5208	179.5208	3.4400e-003	3.2900e-003	180.5876
Apartments Mid Rise	8.13674e+006	0.0439	0.3749	0.1595	2.3900e-003		0.0303	0.0303		0.0303	0.0303	0.0000	434.2077	434.2077	8.3200e-003	7.9600e-003	436.7879
General Office Building	798100	4.3000e-003	0.0391	0.0329	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	42.5897	42.5897	8.2000e-004	7.8000e-004	42.8427
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.04971e+007	0.1645	1.4950	1.2558	8.9700e-003		0.1136	0.1136		0.1136	0.1136	0.0000	1,627.4404	1,627.4404	0.0312	0.0298	1,637.1115
Industrial Park	4.164e+006	0.0225	0.2041	0.1715	1.2200e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.2069	222.2069	4.2600e-003	4.0700e-003	223.5274
Regional Shopping Center	222000	1.2000e-003	0.0109	9.1400e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8468	11.8468	2.3000e-004	2.2000e-004	11.9172
Regional Shopping Center	888000	4.7900e-003	0.0435	0.0366	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.3871	47.3871	9.1000e-004	8.7000e-004	47.6687
Single Family Housing	1.65219e+006	8.9100e-003	0.0761	0.0324	4.9000e-004		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.0000	88.1673	88.1673	1.6900e-003	1.6200e-003	88.6912
Total		**0.2681**	**2.3987**	**1.7637**	**0.0146**		**0.1852**	**0.1852**		**0.1852**	**0.1852**	**0.0000**	**2,653.3665**	**2,653.3665**	**0.0509**	**0.0487**	**2,669.1341**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.04982e+006	605.1881	0.0138	2.8600e-003	606.3848
Apartments Mid Rise	2.51224e+006	1,448.2327	0.0331	6.8400e-003	1,451.0963
General Office Building	2.1896e+006	1,262.2399	0.0288	5.9600e-003	1,264.7358
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	9.21875e+006	5,314.3367	0.1213	0.0251	5,324.8449
Industrial Park	1.1424e+007	6,585.5995	0.1503	0.0311	6,598.6215
Regional Shopping Center	1.263e+006	728.0823	0.0166	3.4400e-003	729.5220
Regional Shopping Center	5.052e+006	2,912.3292	0.0665	0.0138	2,918.0879
Single Family Housing	470690	271.3389	6.1900e-003	1.2800e-003	271.8754
Total		**19,127.3471**	**0.4365**	**0.0903**	**19,165.1684**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.04982e+006	605.1881	0.0138	2.8600e-003	606.3848
Apartments Mid Rise	2.51224e+006	1,448.2327	0.0331	6.8400e-003	1,451.0963
General Office Building	2.1896e+006	1,262.2399	0.0288	5.9600e-003	1,264.7358

Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	9.21875e+006	5,314.3367	0.1213	0.0251	5,324.8449
Industrial Park	1.1424e+007	6,585.5995	0.1503	0.0311	6,598.6215
Regional Shopping Center	1.263e+006	728.0823	0.0166	3.4400e-003	729.5220
Regional Shopping Center	5.052e+006	2,912.3292	0.0665	0.0138	2,918.0879
Single Family Housing	470690	271.3389	6.1900e-003	1.2800e-003	271.8754
Total		**19,127.3471**	**0.4365**	**0.0903**	**19,165.1684**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.9168	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062
Unmitigated	13.9168	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.4377					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.2215					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2575	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062
Total	**13.9168**	**0.0978**	**8.4876**	**4.5000e-004**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**13.8704**	**13.8704**	**0.0134**	**0.0000**	**14.2062**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.4377					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.2215					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2575	0.0978	8.4876	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8704	13.8704	0.0134	0.0000	14.2062
Total	**13.9168**	**0.0978**	**8.4876**	**4.5000e-004**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**13.8704**	**13.8704**	**0.0134**	**0.0000**	**14.2062**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4,010.5087	10.9782	0.2756	4,367.0777
Unmitigated	4,754.8067	13.7169	0.3432	5,200.0072

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	14.0733 / 8.87228	166.9252	0.4623	0.0116	181.9376
Apartments Mid Rise	35.8347 / 22.5915	425.0410	1.1771	0.0295	463.2671
General Office Building	40.8788 / 25.0547	480.2792	1.3427	0.0337	523.8769

Golf Course	0 / 149.721	958.9033	0.0219	4.5300e-003	960.7993
Hotel	8.87837 / 0.986486	75.7778	0.2910	7.1800e-003	85.1902
Industrial Park	277.5 / 0	2,171.0148	9.0899	0.2233	2,464.8179
Regional Shopping Center	37.0363 / 22.6996	435.1342	1.2165	0.0305	474.6338
Single Family Housing	3.51832 / 2.21807	41.7313	0.1156	2.9000e-003	45.4844
Total		**4,754.8067**	**13.7169**	**0.3432**	**5,200.0072**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	11.2586 / 8.33107	141.4386	0.3700	9.3100e-003	153.4642
Apartments Mid Rise	28.6678 / 21.2134	360.1445	0.9422	0.0237	390.7652
General Office Building	32.703 / 23.5264	406.5281	1.0747	0.0270	441.4503
Golf Course	0 / 140.588	900.4102	0.0206	4.2500e-003	902.1906
Hotel	7.1027 / 0.92631	61.5004	0.2328	5.7400e-003	69.0321
Industrial Park	222 / 0	1,736.8119	7.2719	0.1787	1,971.8543
Regional Shopping Center	29.629 / 21.315	368.3154	0.9737	0.0245	399.9551
Single Family Housing	2.81465 / 2.08277	35.3597	0.0925	2.3300e-003	38.3660
Total		**4,010.5087**	**10.9782**	**0.2755**	**4,367.0777**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	575.7697	34.0270	0.0000	1,426.4450
Unmitigated	575.7697	34.0270	0.0000	1,426.4450

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	99.36	20.1692	1.1920	0.0000	49.9683
Apartments Mid Rise	253	51.3567	3.0351	0.0000	127.2341
General Office Building	213.9	43.4198	2.5660	0.0000	107.5706
Golf Course	2.4	0.4872	0.0288	0.0000	1.2070
Hotel	191.63	38.8992	2.2989	0.0000	96.3710
Industrial Park	1488	302.0506	17.8507	0.0000	748.3175
Regional Shopping Center	525	106.5703	6.2981	0.0000	264.0233

Single Family Housing	63.14	12.8169	0.7575	0.0000	31.7532
Total		**575.7697**	**34.0270**	**0.0000**	**1,426.4449**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	99.36	20.1692	1.1920	0.0000	49.9683
Apartments Mid Rise	253	51.3567	3.0351	0.0000	127.2341
General Office Building	213.9	43.4198	2.5660	0.0000	107.5706
Golf Course	2.4	0.4872	0.0288	0.0000	1.2070
Hotel	191.63	38.8992	2.2989	0.0000	96.3710
Industrial Park	1488	302.0506	17.8507	0.0000	748.3175
Regional Shopping Center	525	106.5703	6.2981	0.0000	264.0233
Single Family Housing	63.14	12.8169	0.7575	0.0000	31.7532
Total		**575.7697**	**34.0270**	**0.0000**	**1,426.4449**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Proposed NorthStar Specific Plan - Operation

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	230.00	1000sqft	16.00	230,000.00	0
Industrial Park	381.04	1000sqft	28.20	381,035.00	0
Arena	295.00	1000sqft	41.40	295,000.00	0
Golf Course	18.00	Hole	245.90	0.00	0
Hotel	350.00	Room	17.60	508,200.00	0
Apartments Low Rise	216.00	Dwelling Unit	9.95	216,000.00	618
Apartments Mid Rise	550.00	Dwelling Unit	33.20	550,000.00	1573
Single Family Housing	54.00	Dwelling Unit	7.30	97,200.00	154
Regional Shopping Center	400.00	1000sqft	36.20	400,000.00	0
Regional Shopping Center	100.00	1000sqft	20.00	100,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total of 455.75 acres.

Construction Phase - Operation only.

Vehicle Trips - Based on project traffic memo.

Woodstoves - No woodstoves.

Mobile Land Use Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	500.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	183.60	0.00
tblFireplaces	NumberGas	467.50	0.00
tblFireplaces	NumberGas	45.90	0.00
tblFireplaces	NumberNoFireplace	21.60	0.00
tblFireplaces	NumberNoFireplace	55.00	0.00
tblFireplaces	NumberNoFireplace	5.40	0.00
tblFireplaces	NumberWood	10.80	0.00
tblFireplaces	NumberWood	27.50	0.00
tblFireplaces	NumberWood	2.70	0.00

tblLandUse	LandUseSquareFeet	381,040.00	381,035.00
tblLandUse	LotAcreage	5.28	16.00
tblLandUse	LotAcreage	8.75	28.20
tblLandUse	LotAcreage	94.82	41.40
tblLandUse	LotAcreage	125.66	245.90
tblLandUse	LotAcreage	11.67	17.60
tblLandUse	LotAcreage	13.50	9.95
tblLandUse	LotAcreage	14.47	33.20
tblLandUse	LotAcreage	17.53	7.30
tblLandUse	LotAcreage	2.30	20.00
tblLandUse	LotAcreage	9.18	36.20
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	6.39	0.00
tblVehicleTrips	ST_TR	10.71	0.00
tblVehicleTrips	ST_TR	2.46	178.78
tblVehicleTrips	ST_TR	40.63	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	5.86	0.00
tblVehicleTrips	SU_TR	10.71	0.00
tblVehicleTrips	SU_TR	1.05	178.78
tblVehicleTrips	SU_TR	39.53	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00

tblVehicleTrips	WD_TR	6.65	0.00
tblVehicleTrips	WD_TR	10.71	0.00
tblVehicleTrips	WD_TR	11.03	178.78
tblVehicleTrips	WD_TR	35.74	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	6.83	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWoodstoves	NumberCatalytic	10.80	0.00
tblWoodstoves	NumberCatalytic	27.50	0.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	10.80	0.00
tblWoodstoves	NumberNoncatalytic	27.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

<u>Mitigated Construction</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
		Highest		

2.2 Overall Operational

<u>Unmitigated Operational</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	11.7800	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923
Energy	0.3045	2.7292	2.0413	0.0166		0.2104	0.2104		0.2104	0.2104	0.0000	19,372.1493	19,372.1493	0.4310	0.1325	19,422.4024
Mobile	10.5118	75.3396	131.7330	0.6325	50.5685	0.3600	50.9285	13.5468	0.3355	13.8823	0.0000	58,685.9172	58,685.9172	2.5614	0.0000	58,749.9525
Waste						0.0000	0.0000		0.0000	0.0000	371.2786	0.0000	371.2786	21.9419	0.0000	919.8270
Water						0.0000	0.0000		0.0000	0.0000	112.7560	4,206.5405	4,319.2965	11.6771	0.2933	4,698.6318
Total	**22.5962**	**78.1665**	**142.2552**	**0.6496**	**50.5685**	**0.6172**	**51.1858**	**13.5468**	**0.5928**	**14.1396**	**484.0345**	**82,278.4645**	**82,762.4990**	**36.6249**	**0.4258**	**83,805.0060**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	11.7800	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923
Energy	0.3045	2.7292	2.0413	0.0166		0.2104	0.2104		0.2104	0.2104	0.0000	19,372.1493	19,372.1493	0.4310	0.1325	19,422.4024
Mobile	10.5118	75.3396	131.7330	0.6325	50.5685	0.3600	50.9285	13.5468	0.3355	13.8823	0.0000	58,685.9172	58,685.9172	2.5614	0.0000	58,749.9525
Waste						0.0000	0.0000		0.0000	0.0000	371.2786	0.0000	371.2786	21.9419	0.0000	919.8270
Water						0.0000	0.0000		0.0000	0.0000	97.6467	3,755.1918	3,852.8385	10.1149	0.2545	4,181.5650
Total	**22.5962**	**78.1665**	**142.2552**	**0.6496**	**50.5685**	**0.6172**	**51.1858**	**13.5468**	**0.5928**	**14.1396**	**468.9252**	**81,827.1158**	**82,296.0410**	**35.0627**	**0.3870**	**83,287.9392**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.12**	**0.55**	**0.56**	**4.27**	**9.11**	**0.62**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/11/2021	2/10/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.5118	75.3396	131.7330	0.6325	50.5685	0.3600	50.9285	13.5468	0.3355	13.8823	0.0000	58,685.9172	58,685.9172	2.5614	0.0000	58,749.9525
Unmitigated	10.5118	75.3396	131.7330	0.6325	50.5685	0.3600	50.9285	13.5468	0.3355	13.8823	0.0000	58,685.9172	58,685.9172	2.5614	0.0000	58,749.9525

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Apartments Mid Rise	0.00	0.00	0.00		
Arena	0.00	0.00	0.00		
General Office Building	41,119.13	41,119.13	41119.13	132,463,664	132,463,664
Golf Course	0.00	0.00	0.00		
Hotel	0.00	0.00	0.00		
Industrial Park	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	41,119.13	41,119.13	41,119.13	132,463,664	132,463,664

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Arena	16.60	8.40	6.90	0.00	81.00	19.00	66	28	6
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Apartments Mid Rise	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Arena	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Office Building	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Golf Course	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Hotel	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

Industrial Park	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Regional Shopping Center	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Single Family Housing	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16,358.9645	16,358.9645	0.3733	0.0772	16,391.3117
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16,358.9645	16,358.9645	0.3733	0.0772	16,391.3117
NaturalGas Mitigated	0.3045	2.7292	2.0413	0.0166		0.2104	0.2104		0.2104	0.2104	0.0000	3,013.1849	3,013.1849	0.0578	0.0552	3,031.0907
NaturalGas Unmitigated	0.3045	2.7292	2.0413	0.0166		0.2104	0.2104		0.2104	0.2104	0.0000	3,013.1849	3,013.1849	0.0578	0.0552	3,031.0907

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	3.36409e+006	0.0181	0.1550	0.0660	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	179.5208	179.5208	3.4400e-003	3.2900e-003	180.5876

Apartments Mid Rise	8.13674e+006	0.0439	0.3749	0.1595	2.3900e-003		0.0303	0.0303		0.0303	0.0303	0.0000	434.2077	434.2077	8.3200e-003	7.9600e-003	436.7879
Arena	9.58455e+006	0.0517	0.4698	0.3947	2.8200e-003		0.0357	0.0357		0.0357	0.0357	0.0000	511.4681	511.4681	9.8000e-003	9.3800e-003	514.5075
General Office Building	798100	4.3000e-003	0.0391	0.0329	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	42.5897	42.5897	8.2000e-004	7.8000e-004	42.8427
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.04971e+007	0.1645	1.4950	1.2558	8.9700e-003		0.1136	0.1136		0.1136	0.1136	0.0000	1,627.4404	1,627.4404	0.0312	0.0298	1,637.1115
Industrial Park	1.32219e+006	7.1300e-003	0.0648	0.0544	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003	0.0000	70.5572	70.5572	1.3500e-003	1.2900e-003	70.9765
Regional Shopping Center	222000	1.2000e-003	0.0109	9.1400e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8468	11.8468	2.3000e-004	2.2000e-004	11.9172
Regional Shopping Center	888000	4.7900e-003	0.0435	0.0366	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.3871	47.3871	9.1000e-004	8.7000e-004	47.6687
Single Family Housing	1.65219e+006	8.9100e-003	0.0761	0.0324	4.9000e-004		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.0000	88.1673	88.1673	1.6900e-003	1.6200e-003	88.6912
Total		**0.3045**	**2.7292**	**2.0413**	**0.0166**		**0.2104**	**0.2104**		**0.2104**	**0.2104**	**0.0000**	**3,013.1849**	**3,013.1849**	**0.0578**	**0.0553**	**3,031.0907**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	3.36409e+006	0.0181	0.1550	0.0660	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	179.5208	179.5208	3.4400e-003	3.2900e-003	180.5876
Apartments Mid Rise	8.13674e+006	0.0439	0.3749	0.1595	2.3900e-003		0.0303	0.0303		0.0303	0.0303	0.0000	434.2077	434.2077	8.3200e-003	7.9600e-003	436.7879
Arena	9.58455e+006	0.0517	0.4698	0.3947	2.8200e-003		0.0357	0.0357		0.0357	0.0357	0.0000	511.4681	511.4681	9.8000e-003	9.3800e-003	514.5075
General Office Building	798100	4.3000e-003	0.0391	0.0329	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	42.5897	42.5897	8.2000e-004	7.8000e-004	42.8427
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.04971e+007	0.1645	1.4950	1.2558	8.9700e-003		0.1136	0.1136		0.1136	0.1136	0.0000	1,627.4404	1,627.4404	0.0312	0.0298	1,637.1115

Industrial Park	1.32219e+006	7.1300e-003	0.0648	0.0544	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003	0.0000	70.5572	70.5572	1.3500e-003	1.2900e-003	70.9765
Regional Shopping Center	222000	1.2000e-003	0.0109	9.1400e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8468	11.8468	2.3000e-004	2.2000e-004	11.9172
Regional Shopping Center	888000	4.7900e-003	0.0435	0.0366	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.3871	47.3871	9.1000e-004	8.7000e-004	47.6687
Single Family Housing	1.65219e+006	8.9100e-003	0.0761	0.0324	4.9000e-004		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.0000	88.1673	88.1673	1.6900e-003	1.6200e-003	88.6912
Total		**0.3045**	**2.7292**	**2.0413**	**0.0166**		**0.2104**	**0.2104**		**0.2104**	**0.2104**	**0.0000**	**3,013.1849**	**3,013.1849**	**0.0578**	**0.0553**	**3,031.0907**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.04982e+006	605.1881	0.0138	2.8600e-003	606.3848
Apartments Mid Rise	2.51224e+006	1,448.2327	0.0331	6.8400e-003	1,451.0963
Arena	2.99425e+006	1,726.0969	0.0394	8.1500e-003	1,729.5100
General Office Building	2.1896e+006	1,262.2399	0.0288	5.9600e-003	1,264.7358
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	9.21875e+006	5,314.3367	0.1213	0.0251	5,324.8449
Industrial Park	3.62745e+006	2,091.1199	0.0477	9.8700e-003	2,095.2548
Regional Shopping Center	1.263e+006	728.0823	0.0166	3.4400e-003	729.5220
Regional Shopping Center	5.052e+006	2,912.3292	0.0665	0.0138	2,918.0879
Single Family Housing	470690	271.3389	6.1900e-003	1.2800e-003	271.8754
Total		**16,358.9645**	**0.3733**	**0.0772**	**16,391.3117**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.04982e+006	605.1881	0.0138	2.8600e-003	606.3848
Apartments Mid Rise	2.51224e+006	1,448.2327	0.0331	6.8400e-003	1,451.0963
Arena	2.99425e+006	1,726.0969	0.0394	8.1500e-003	1,729.5100
General Office Building	2.1896e+006	1,262.2399	0.0288	5.9600e-003	1,264.7358
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	9.21875e+006	5,314.3367	0.1213	0.0251	5,324.8449
Industrial Park	3.62745e+006	2,091.1199	0.0477	9.8700e-003	2,095.2548
Regional Shopping Center	1.263e+006	728.0823	0.0166	3.4400e-003	729.5220
Regional Shopping Center	5.052e+006	2,912.3292	0.0665	0.0138	2,918.0879
Single Family Housing	470690	271.3389	6.1900e-003	1.2800e-003	271.8754
Total		**16,358.9645**	**0.3733**	**0.0772**	**16,391.3117**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	11.7800	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923
Unmitigated	11.7800	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1949					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.3282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2569	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923
Total	**11.7800**	**0.0977**	**8.4809**	**4.5000e-004**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**13.8574**	**13.8574**	**0.0134**	**0.0000**	**14.1923**

Mitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Architectural Coating	1.1949					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.3282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2569	0.0977	8.4809	4.5000e-004		0.0469	0.0469		0.0469	0.0469	0.0000	13.8574	13.8574	0.0134	0.0000	14.1923
Total	**11.7800**	**0.0977**	**8.4809**	**4.5000e-004**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**13.8574**	**13.8574**	**0.0134**	**0.0000**	**14.1923**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Shower

Use Water Efficient Irrigation System

Category	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3,852.8385	10.1149	0.2545	4,181.5650
Unmitigated	4,319.2965	11.6771	0.2933	4,698.6318

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	14.0733 / 8.87228	166.9252	0.4623	0.0116	181.9376
Apartments Mid Rise	35.8347 / 22.5915	425.0410	1.1771	0.0295	463.2671
Arena	127.077 / 8.11131	1,046.1350	4.1638	0.1025	1,180.7807
General Office Building	40.8788 / 25.0547	480.2792	1.3427	0.0337	523.8769
Golf Course	0 / 149.721	958.9033	0.0219	4.5300e-003	960.7993
Hotel	8.87837 / 0.986486	75.7778	0.2910	7.1800e-003	85.1902
Industrial Park	88.1155 / 0	689.3696	2.8863	0.0709	782.6618
Regional Shopping Center	37.0363 / 22.6996	435.1342	1.2165	0.0305	474.6338
Single Family Housing	3.51832 / 2.21807	41.7313	0.1156	2.9000e-003	45.4844
Total		**4,319.2965**	**11.6771**	**0.2933**	**4,698.6318**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Apartments Low Rise	12.1875 / 8.33107	148.7053	0.4004	0.0101	161.7143
Apartments Mid Rise	31.0329 / 21.2134	378.6478	1.0196	0.0256	411.7725
Arena	110.049 / 7.61652	909.7452	3.6059	0.0888	1,026.3559
General Office Building	35.401 / 23.5264	427.6358	1.1630	0.0292	465.4145
Golf Course	0 / 140.588	900.4102	0.0206	4.2500e-003	902.1906
Hotel	7.68867 / 0.92631	66.0848	0.2520	6.2200e-003	74.2369
Industrial Park	76.308 / 0	596.9941	2.4996	0.0614	677.7852
Regional Shopping Center	32.0734 / 21.315	387.4391	1.0537	0.0265	421.6667
Single Family Housing	3.04686 / 2.08277	37.1763	0.1001	2.5200e-003	40.4286
Total		**3,852.8385**	**10.1149**	**0.2546**	**4,181.5650**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	371.2786	21.9419	0.0000	919.8270
Unmitigated	371.2786	21.9419	0.0000	919.8270

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	99.36	20.1692	1.1920	0.0000	49.9683
Apartments Mid Rise	253	51.3567	3.0351	0.0000	127.2341
Arena	8.12	1.6483	0.0974	0.0000	4.0836
General Office Building	213.9	43.4198	2.5660	0.0000	107.5706
Golf Course	2.4	0.4872	0.0288	0.0000	1.2070
Hotel	191.63	38.8992	2.2989	0.0000	96.3710
Industrial Park	472.49	95.9112	5.6682	0.0000	237.6159
Regional Shopping Center	525	106.5703	6.2981	0.0000	264.0233
Single Family Housing	63.14	12.8169	0.7575	0.0000	31.7532
Total		**371.2786**	**21.9419**	**0.0000**	**919.8270**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	99.36	20.1692	1.1920	0.0000	49.9683
Apartments Mid Rise	253	51.3567	3.0351	0.0000	127.2341

Arena	8.12	1.6483	0.0974	0.0000	4.0836
General Office Building	213.9	43.4198	2.5660	0.0000	107.5706
Golf Course	2.4	0.4872	0.0288	0.0000	1.2070
Hotel	191.63	38.8992	2.2989	0.0000	96.3710
Industrial Park	472.49	95.9112	5.6682	0.0000	237.6159
Regional Shopping Center	525	106.5703	6.2981	0.0000	264.0233
Single Family Housing	63.14	12.8169	0.7575	0.0000	31.7532
Total		**371.2786**	**21.9419**	**0.0000**	**919.8270**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D1

Conceptual Drainage Summary

Conceptual Drainage Summary

NorthStar Specific Plan 343 Amendment

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PACE B695

February 2021

1 Introduction

The County of Riverside certified Environmental Impact Report No. 470 and approved Specific Plan 343 in 2006 for the NorthStar Project (Approved Project) on 456 acres in Coachella Valley. Appendix H to the EIR and Specific Plan discusses the hydrology and hydraulics of the existing conditions and for the Approved Project conditions and includes a summary table and exhibits showing the results of the regional analysis. This analysis of the approved Specific Plan concluded that there will be little or no change in the water surface elevations upstream and downstream of the Approved Project.

A Specific Plan Amendment is currently proposed to allow additional commercial uses in this approved mixed use project and minor changes to the project configuration described in the approved Specific Plan. These changes include minor changes to the Conceptual Drainage Plan in the Specific Plan. This summary compares the Proposed Project to the Approved Project, and the implications to the hydrology and hydraulics and conclusions provided in Appendix H of the approved Specific Plan.

2 Approved Project and Proposed Addendum Project Conditions

The Approved Conceptual Drainage Plan was developed to protect all structures from 100-year flood damage, result in no net increase in runoff volumes and no net increase in flowrate to downstream areas, provide all weather access through public and private streets, maintain existing drainage patterns through the golf course, and provide basin area for future water quality needs. The Approved Conceptual Drainage Plan relies on the golf course grading and project development layout to meet the stated project drainage design goals. The Approved Project site plan layout is shown on the Approved 2006 Conceptual Drainage Plan, Figure A.

The golf course grading includes basins for storage and future water quality treatment, and corridors that allow overland flow to travel generally southeast following the regional riverine flow pattern that controls current project design. A large basin area on the east end of the golf course and a conveyance corridor in the east part of the development area provide project discharge in a way that preserves existing flow patterns downstream of the project property.

The Proposed Conceptual Drainage Plan consists of the same basic layout as the Approved Project but incorporates minor revisions to the planned use and interior configuration of the development area along Varner Road. The Proposed Project design is consistent the original design in the Approved Specific Plan as evaluated in the Certified EIR and with the future CVWD Thousand Palms Flood Control Plan construction and will function as part of the overall regional drainage system. The Proposed Project site plan layout is shown on the Proposed 2021 Conceptual Drainage Plan, Figure B.

The overall boundary is the same, the golf course boundary is the same, and the overall configuration of the Specific Plan Area is unchanged. The Approved Project conveyance corridors through the golf course and along Varner Road are maintained in the Proposed Project. The large golf course basin and conveyance corridor through the development area in the Approved Project drainage plan are maintained in the Proposed Project.

Note that the Proposed Project plan layout and uses are mostly unchanged from the Approved Project plan and layout. Table 1 shows the land use designations and areas in the two configurations. The primary changes proposed include the establishment of new Planning Area 11 to allow development of an Arena and Event Center and corresponding reduction in the size of Planning Area 8 – Industrial Park, to accommodate the new Planning Area 11.

Table 1
Approved Project and Proposed Project Land Use Summary

Approved Land Use Summary NorthStar Specific Plan			Proposed Land Use Summary NorthStar Specific Plan		
Planning Area	Land Use Description	Land Area (Acres)	Planning Area	Land Use Description	Land Area (Acres)
1	18-hole Golf Course	240.00	1	18-hole Golf Course	240.00
2	Golf Clubhouse	5.90	2	Golf Clubhouse	5.90
3	Golf View Hotel	17.60	3	Golf View Hotel	17.60
4	Golf View Villas	7.30	4	Golf View Villas	7.30
5	Resort Timeshare Units	9.95	5	Resort Timeshare Units	9.95
6	Golf View Condominiums	33.20	6	Golf View Condominiums	33.20
7	Mixed Use Retail Village	36.20	7	Mixed Use Retail Village	36.20
8	Industrial Park (Research & Development)	69.60	8	Industrial Park (Research & Development)	28.20
9	Executive Office	16.00	9	Executive Office	16.00
10	Community Commercial	20.00	10	Community Commercial	20.00
			11	Arena & Event Center Hockey Training Facility	41.4
TOTAL		**455.75**	**TOTAL**		**455.75**

3 Proposed Project Changes to Hydrology and Hydraulics

Differences in the hydrology and hydraulics between the Approved Project and the Proposed Project were identified and evaluated by examining the differences between the two land plan configurations and considering how flow conditions could be altered by those configuration differences. What is notable is that only minor changes to the project layout, land use, and drainage conditions are proposed.

Comparison of the Approved 2006 Project Conceptual Drainage Plan to the Proposed 2021 Project Conceptual Drainage Plan shows that the project elements necessary for the drainage design goals in the approved Specific Plan are unchanged. The location and size of flow corridors through the golf course in the Proposed Project are the same, preserving overland flow patterns of the Approved Project. Basin storage areas in the Approved project are retained in the Proposed Project, creating necessary storage, and allowing water quality treatment described in the approved Specific Plan. The east golf course basin and flow channel through the east end of the development area are also retained, so that the Proposed Project maintains the Approved Project discharge conditions to downstream properties.

The golf course and the project development both have the same boundaries and areas in the Proposed Project that they do in the Approved Project. The only differences between the Approved Project and the Proposed Project are minor layout changes associated with the reduction in the Industrial Park Planning Area and the addition off the Arena and Event Center Planning Area. Those project changes will only result in minor changes to local flow patterns on the interior of the project, and minor changes to the volume of runoff generated which will be compensated for with additional basin area in the Proposed Project.

To show the difference in runoff volume that will be generated from the two configurations, the loss rates of the developed areas, and the runoff volume generated on the developed areas were calculated for the two project configurations using Riverside County Flood Control & Water Conservation District hydrology methods. Table 2 shows the loss rates and runoff volumes from the project developed areas, not including the golf course, of each project condition during the 100 year 24 hour storm.

Table 2
Approved Project and Proposed Project
Development Area Loss Rates and Runoff Volumes

Project Condition	Development Area (ac)	Weighted Loss Rate (in/hr)	Net Runoff (ac-ft)
Approved Project	215.75	0.178	33.5
Proposed Project	215.75	0.171	34.5

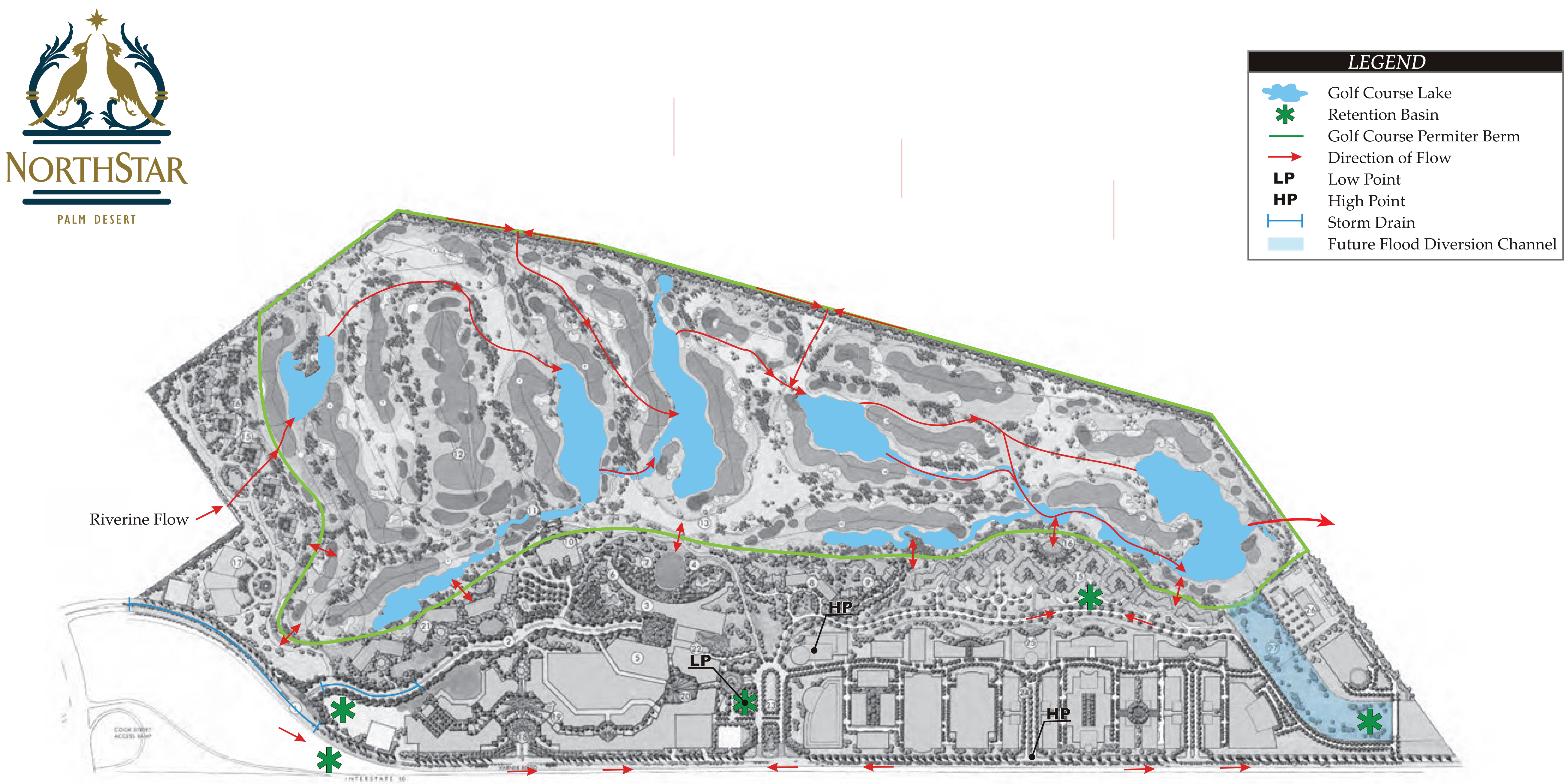
The Approved Project components that effect hydrology and hydraulics are the same in the Proposed Project conditions. As shown in Table 2, the net runoff volume will incrementally increase from 33.5 ac-ft to 34.5 ac-ft for a 100 year 24 hour storm. The small increase in the volume of net runoff generated by the Proposed Project will be easily compensated for by small increases to the size of the basins in the Proposed Project. The small local alterations in flow patterns on the interior of the project will not result in differences in the downstream flow conditions between the Approved Project and the Proposed Project.

The overall runoff volume, flowrate, and the regional flow patterns will not change with the Proposed Project.

4 Conclusions

All essential components of the Approved Project Conceptual Drainage Plan are retained in the Proposed Project. The Proposed Project will preserve the flow conditions of the Approved Project without changing the overall runoff volume, flowrate, or discharge flow patterns, leaving the regional and downstream flow conditions unchanged.

Detailed analysis performed during project design will provide guidance for any small detail adjustments needed and will demonstrate that the Proposed Project results in no significant changes to the flow conditions described for the Approved Project in the approved Specific Plan and Certified Final EIR.



APPROVED CONCEPTUAL DRAINAGE PLAN

The Keith Companies TKC

NORTHSTAR
40421.03.000 SPECIFIC PLAN

FEET
0 200 400 600

Figure IV-7

PROPOSED CONCEPTUAL DRAINAGE PLAN

NORTHSTAR
40421.03.000 SPECIFIC PLAN
AMENDMENT NO. 2

Figure IV-7

APPENDIX D2

Updated Hydrology, Hydraulics, and Flood Control Improvement Plan Concept Study

NorthStar Specific Plan – Updated Hydrology, Hydraulics, and Flood Control Improvement Plan Concept Study

February, 2021

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1 Introduction

1.1 Purpose

This report updates the analysis and findings of the hydrology and hydraulic analysis completed in 2005 (VDA, 2005) to support the planning of the approved NorthStar Specific Plan 343 project (SP343 project) and Environmental Impact Report (EIR) prepared and certified by the County of Riverside. New hydraulic modelling is presented to:

- Include results of new approved hydrology and regional hydraulics studies by Northwest Hydraulic Consultants (NHC, 2014).
- Conform to the latest practices of Riverside County and Coachella Valley Water District (CVWD).
- Reflect a proposed Specific Plan Amendment, which would allow the development of an arena an events center as the next phase of development in the Specific Plan Area.

The updated modelling establishes the existing and proposed conditions floodplain hydraulics, as well as hydraulic impacts of the project. The following HEC-RAS 2D models are included and discussed in this report:

- <u>Existing Condition 2020:</u> this condition includes the existing Classic Club golf course and golf club house, while the remaining project areas are undeveloped.
- <u>Proposed Arena Phase Flood Control Improvements:</u> this model will include the proposed arena and events center, associated flood control improvements, and existing Classic Club golf course and golf club house, while remaining areas will remain undeveloped.
- <u>SP343 Master Drainage Plan Update</u>: this model will include all existing and proposed developments and associated flood control improvements, as well as Coachella Valley Water District (CVWD) Morongo Wash Diversion.

The objectives of this modeling is to demonstrate the proposed flood control improvements provide 100-year flood protection for the proposed Arena and for full development of the SP343 project, while ensuring the improvements do not increase flood hazards on adjacent property. Model results will also be used to ensure the Specific Plan Amendment does not cause any new or substantially more severe impacts than previously identified in the 2005 hydrology and hydraulic analysis (VDA, 2005).

1.2 Project Description

NorthStar Specific Plan Area is located in the Western Coachella Valley, an unincorporated area of Riverside County (see **Figure 1**: Vicinity Map). The project site is bound by Coachella Valley Preserve on the north, Varner Road on the south, Cook Street on the west, and undeveloped land on the east. The approved NorthStar Specific Plan allows development of a variety of land uses including a golf course, a club house, a hotel, villas, resort timeshare units, condominiums, a retail village, an industrial park, an executive office, and a commercial area. The golf course and club house have been developed. A proposed Specific Plan Amendment would reduce the amount of industrial park development and allow the development of an arena and events center as the next phase of development in the Specific Plan Area.

The SP343 project is situated on the valley floor at the base of Indio Hills, and is subject to both alluvial fan and riverine flow hazards. The most significant flood hazard at the project site is riverine flow along the I-10 corridor, with a tributary area of approximately 207 square miles. The SP343 project is located in FEMA flood hazard Zone AO, with flood depths and velocities from alluvial fan hazards mapped as 2-3 ft and 6-8 ft/s, respectively (see **Figure 2** and **Figure 3**).

Proposed Arena Phase flood control improvements as well as a SP343 Master Drainage Plan Update have been designed to protect development areas in all phases of the SP343 project from the 100-year flood without increasing flood hazards on neighboring property. The proposed Arena Phase Flood Control

Improvements and SP343 Master Drainage Plan Update have been designed to comply with applicable policies defined by the Coachella Valley Water District (CVWD) and Riverside County.

1.3 List of Relevant Studies

Numerous hydrology, hydraulics, and sediment transport studies have been completed in the vicinity of SP343. The following sections provide a brief description of relevant studies that will be referenced throughout the report.

1.3.1 Whitewater River Basin: Feasibility Report and Final Environmental Impact Statement/ Environmental Impact Report (USACE, 2000)

The United States Army Corps of Engineers (USACE) completed a feasibility study to analyze flood hazards within the Whitewater River basin and identify alternative flood control plans. The report focused on flood protection in the Thousand Palms area of the Whitewater River Basin. Alternative 6 was the selected alternative, which features four levees designed to contain the 100-year flood event and provide flood protection below the Indio Hills.

1.3.2 Whitewater River Basin Feasibility Study: Hydraulics Appendix (SLA, 2000)

Simons, Li & Associates (SLA) developed a sediment transport study for the channels on the Morongo Fan to analyze Alternative 2 of the USACE Whitewater River Basin Evaluation Analysis. The report discusses sediment transport capacity for Morongo and Long Canyon 100-year flows, which were obtained by applying bed and suspended load sediment transport functions to representative sediment samples.

1.3.3 Whitewater River Sediment Study (NHC, 2004)

NHC (2004) completed a fluvial analysis of the reach of Coachella Valley between Thousand Palms and Sun City developments (Shvidchenko et al., 2006). NHC developed a MIKE-21 model for the alluvial fan in the area and used the model results to calculate sediment transport under existing conditions and with the USACE Whitewater River Feasibility Report Alternative 6 in place.

1.3.4 Hydrology, Hydraulics and Flood Control Improvement Concept Study for Management of Off-Site Flows for NorthStar Development Palm Desert, California (VDA, 2005)

This report was included as Appendix H of the approved SP343 EIR and documents the hydrology and hydraulic studies related to the flood control improvement plan for the NorthStar Development and Golf Course Project. Van Dell and Associates, Inc. (VDA) developed regional and localized HEC-RAS 1D models of the existing and proposed conditions to determine the hydraulic impacts of the project using USACE (2000) hydrology. Results of the analyses indicate the SP343 project leads to little or no change in water surface elevations upstream and downstream of the SP343 project.

1.3.5 Flood Insurance Study for Riverside County and Unincorporated Areas (FEMA, 2008)

The 2008 Flood Insurance Study (FIS) assigned FEMA flood hazards to the project site considering alluvial fan hazards originating from canyons in the Indio Hills. The FEMA FAN program was used to determine flood extents, maximum velocities, and flood depths. Peak flows used in FEMA flood hazard mapping were calculated using the unit hydrograph method with NOAA Atlas 2 rainfall depths, and are significantly lower than flow rates calculated by NHC in recent studies (NHC, 2013a). The effective FIRM panel of the area, dated August 2008, is included in **Figure 2**.

1.3.6 North Cathedral City and Thousand Palms Stormwater Management Plan: Thousand Palms Flood Control Project Hydrology and Hydraulics (NHC 2013a)

The proposed CVWD Thousand Palms Flood Control Project (TPFCP), previously Alternative 6 in the USACE Whitewater River Feasibility Report, consists of four levees with excavated channels, with the third levee planned to direct flow into Classic Club, and the fourth planned to receive outflow from Classic Club (see **Figure 4**). NHC was tasked by CVWD to determine area-specific hydrology and hydraulics in order to evaluate hydraulic impacts of the project and to re-evaluate the TPFCP design. NHC developed a new HEC-HMS model to determine 100-year hydrographs at concentration points (CP) of alluvial fan hazards originating from Indio Hills. These hydrographs were input to MIKE FLOOD 2D hydraulic models of the study area to examine flood extents, depths, and velocities, with and without the proposed TPFCP. MIKE model results are included in **Figure 5**.

1.3.7 North Cathedral City and Thousand Palms Stormwater Management Plan: Morongo Wash and Thousand Palms Watersheds Alternatives Analysis Report (NHC, 2013b)

As a part of CVWD's task order to NHC to develop a regional stormwater plan for North Cathedral City and Thousand Palms community, NHC developed and evaluated three stormwater management alternatives which include the TPFCP and flood improvements at the upstream end of the I-10 riverine corridor. NHC (2013b) developed coupled 1D-2D MIKE FLOOD models to evaluate the alternatives, with the NHC (2014) hydrographs for Morongo Wash, Long/Wide Canyons, and Willow Hole as the upstream boundary conditions. Alternative 1 was selected, which includes the TPFCP along with a channel to convey flows from the I-10 culverts beneath the SPRR to the Whitewater River Stormwater Channel (see **Figure 6**).

1.3.8 Sedimentation Analysis Technical Memorandum (Draft) (PB, 2013)

Parsons Brinckerhoff (PB) completed this sediment study in 2013 to estimate 100-year debris yields at nine concentration points on the alluvial fans in originating from Indio Hills. This report discusses debris yield volumes, which were calculated by PB using the Los Angeles Debris Method.

1.3.9 Thousand Palms Stormwater Management Plan: Morongo Wash Hydrology and Hydraulics (NHC, 2014)

CVWD commissioned NHC to study the existing conditions hydrology and hydraulics along the I-10 corridor for a stormwater regional plan (NHC, 2014). NHC developed a new HEC-HMS model of the Morongo Wash, Long Canyon, East and West Wide Canyon, and Willow Hole watersheds following updated CVWD standards. Results of the HEC-HMS model defined inflow hydrographs for a for a MIKE FLOOD 2D hydraulic model, which predicts flood extents, depths, and velocities along the I-10 corridor from Morongo Wash to downstream of Thousand Palms (see **Figure 6**).

1.3.10 Thousand Palms Flood Control Project: Sediment Study Draft Report (NHC, 2016)

This report discusses a sediment study for the TPFCP completed in 2016 by NHC. NHC used hydraulic data from MIKE 21 models, developed previously by NHC (2013a) to analyze sediment transport at Classic Club and Sun City Palm Desert considering inflows from riverine flow along the I-10 corridor as well as alluvial fan flows for various storm events.

2 Hydrology

The governing flood hazard at the SP343 project site is from riverine flow along the I-10 corridor. Major tributaries are Morongo Wash, Long Canyon, Wide Canyon and Thousand Palms Canyon. NHC was commissioned by CVWD to complete regional riverine hydrologic and hydraulic studies. Results of these studies were used to provide inflow to the PACE two-dimensional hydraulic models. Comparison of the riverine inflows in the PACE 2D hydraulic model to the VDA model peak flow rates is included.

2.1 Riverine Flooding

The CVWD approved riverine hydrology for the I-10 corridor was developed by NHC and is described in their 2014 report: *Morongo Wash Watershed Hydrology and Hydraulics*. The source of this riverine flow include Morongo Wash (127 mi^2), Long Canyon (26.2 mi^2), Wide Canyon (30.3 mi^2), Seven Palms Valley (12.7 mi^2), and Willow Hole (13.0 mi^2) watersheds, with a total drainage area of approximately 207 square miles. A watershed map is included in **Figure 8**.

NHC followed CVWD standards and policies and the Riverside County Flood Control and Watershed Conservation District Manual procedures to develop 100-year hydrographs at Morongo Wash, Seven Palms, and Willow Hole outlets. The hydrology was developed using U.S. Army Corps of Engineers' HEC-HMS software and is based on the synthetic unit hydrograph considering hypothetical storms. 100-year rainfall depths were obtained from *NOAA Atlas 14 – Precipitation-Frequency Atlas of the California – Volume 6* (April 2011), and Depth Area Reduction Factors (DARF) from the 1939 Indio Storm were used for areas greater than 10 miles. NHC evaluated several different storm centerings to address that high intensity storm events rarely exhibit equal intensity over large areas. NHC determined the whole-basin centering to produce the most reasonable distribution of flow between the outlets, thus the whole-basin centering results are used in this study. Rainfall excess was calculated using initial and constant loss method, and the Whitewater S-graph unit hydrograph transform was used to generate subbasin hydrographs. Muskingum channel routing was used to combine synthetic unit hydrographs from multiple subbasins. The result is a complex unit hydrograph model, which simulates storm events using nodes (subbasins) and links (channels). A summary of the peak flow rate at each of the outlets is included in **Table 1**.

Table 1: 100-year peak flow rates (NHC, 2014)

Outlet	100-year Peak Discharge (cfs)
Morongo Wash	28,300
Seven Palms	7,860
Willow Hole	3,980

NHC used the HEC-HMS hydrographs at the outlets as inflow to the Morongo Wash Existing Conditions MIKE FLOOD model. Flow from these watersheds were thus routed along the I-10 as a part of the MIKE FLOOD model (see **Figure 7**). PACE extracted inflows from the NHC Morongo Wash Existing Conditions MIKE FLOOD model to serve as inflow to the PACE two-dimensional hydraulic models. Hydrographs were extracted approximately 350 ft upstream of the Ivey Ranch Country Club. The 100-year hydrograph was extracted using nine cross-sections perpendicular to the direction of flow, with a combined peak flow rate of approximately 26,630 cfs. **Figure 9** displays the inflow hydrograph to the PACE model. Note that the inflow hydrograph starts 8 hours and 37.5 minutes after the start of the NHC MIKE FLOOD model.

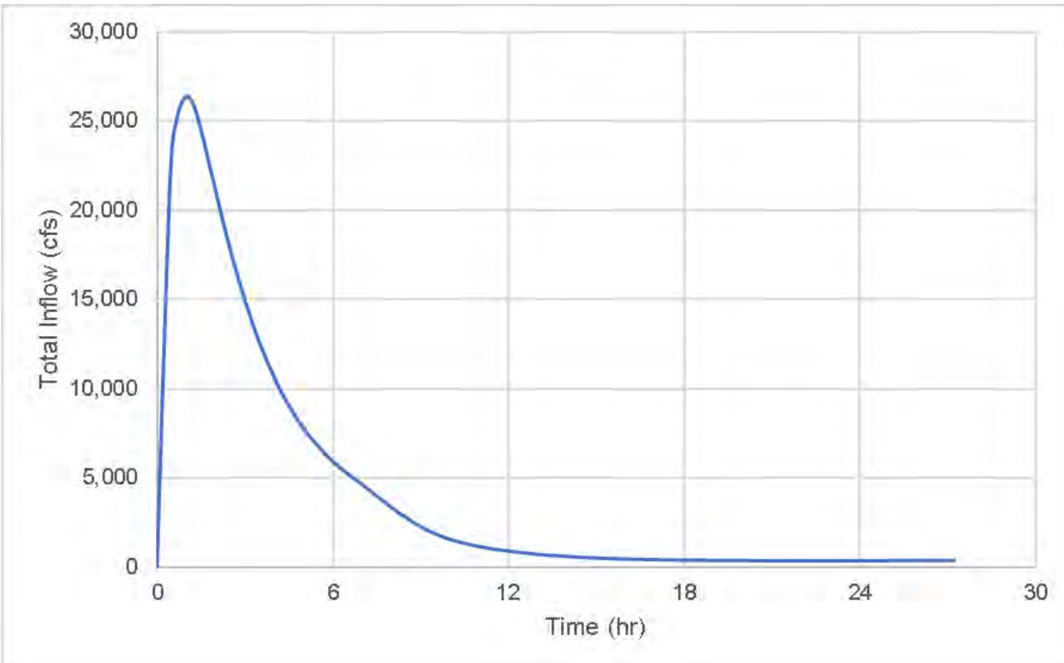

Figure 9: 100-year Model Inflow Hydrograph

2.2 Riverine Flooding with Morongo Wash Diversion

The proposed Morongo Wash Diversion, Alternative 1 in NHC's (2013b) report *North Cathedral City and Thousand Palms Stormwater Management Plan: Morongo Wash and Thousand Palms Watersheds Alternatives Analysis Report*, will reduce the riverine flood hazard to the SP343 project site. The diversion will include a channel to convey flows from the I-10 culverts beneath the SPRR to the WWRSC (see **Figure 6**). Complete plans are finished for the Morongo Wash Diversion, and the project is funded. Therefore, construction of this channel will occur prior to the complete build out of the SP343 project, and PACE modeled the riverine flows to the Master Drainage Plan assuming the Morongo Wash Diversion is constructed. The Arena Phase of the SP343 will likely be constructed prior to the Morongo Wash Diversion, so the existing conditions hydrology are used for Arena Phase hydraulic modelling.

NHC (2013b) developed a coupled 1D-2D MIKE FLOOD model to analyze floodplain hydraulics with the Morongo Wash Diversion, as well as the TPFCP, in place. The model used inflow hydrographs from the NHC (2014) hydrologic models, described above. Results of the MIKE model are included in **Figure 10**, which indicate peak flow rates along the I-10 corridor. A peak flow rate of 11,600 cfs is reported at the Ivey Ranch Country Club property, however a hydrograph at this location was not included in the report. To obtain a hydrograph, PACE scaled the 100-year NHC (2014) existing conditions hydrographs in the vicinity of the Ivey Ranch Country Club by the ratio of proposed vs. existing peak flow rate (11,600 cfs / 26,630 cfs). The resulting hydrograph is shown in **Figure 11** and was used as inflow to the SP343 Master Drainage Plan Update model.

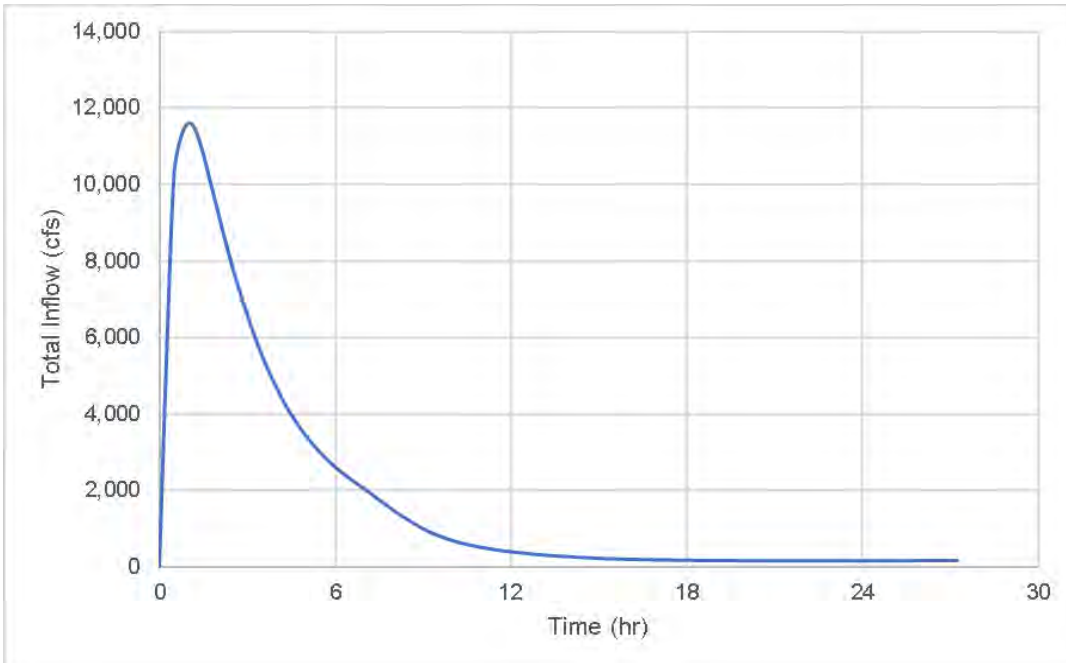

Figure 11: Model Inflow Hydrograph Assuming Morongo Wash Diversion in Place

2.3 Van Dell and Associates, Inc. (2005) Hydrology Comparison

VDA (2005) used hydrology outlined by USACE (2000) in the *Whitewater River Basin: Feasibility Report and Final Environmental Impact Statement/Environmental Impact Report* for all hydraulic modelling, as well as to design the project's flood control improvement plan. USACE reports peak flow rates for the 2-, 10-, 20-, 50-, and 100-year storm events. VDA's regional hydraulic model considered all five flood events, while their localized model, which was used to determine development pad and berm elevations, used the 100-year flow rate. **Table 2** compares the peak 100-year flow rate used by VDA (2005) to peak flow rates used in this study.

Table 2: Comparison of 100-year peak flow rates

Hydraulic Models	VDA 2005	PACE 2020	
		Existing Conditions and Arena Phase	SP343 Master Drainage Plan Update
Peak 100-year Flow (cfs)	23,200[1]	26,630[2]	11,600[2,3]
Hydrology Reference	USACE, 2000	NHC, 2014	NHC, 2013b

Notes:
1. *Peak flow rate at the northern boundary of the Whitewater River Watershed, or the southerly project boundary.*
2. *Peak flow rate at the upstream end of the PACE hydraulic model (350 ft upstream of Ivey Ranch Country Club).*
3. *Peak flow rate reported by NHC (2013b) considering the Morongo Wash Diversion in place.*

Table 2 indicates that the peak flow rate at the upstream end of the PACE existing conditions and Arena Phase models is greater than the peak flow rate used in VDA's modelling. Note, however, that the PACE 2D hydraulic model allows for attenuation, while the VDA model assumes a constant flow rate without storage attenuation. The construction of the Morongo Wash Diversion greatly reduces the 100-year peak flow rate at the Specific Plan Area compared to both NHC (2014) and USACE (2000) existing conditions hydrology. The conclusions of the PACE and VDA studies are drawn from comparing their existing conditions and proposed conditions hydraulic analyses. The existing and proposed conditions hydraulic analyses use consistent hydrology in each study. Therefore, while the hydrology used by PACE and VDA studies is different, the same hydraulic conclusions can be reached.

3 Hydraulics

PACE designed Arena Phase Flood Control Improvements as well as a SP343 Master Drainage Plan Update to reflect changes in the proposed Specific Plan Amendment. Two-dimensional hydraulic models were developed using results from recent approved hydrology and hydraulic studies and adhere to updated CVWD and Riverside County standards. PACE developed two-dimensional models of existing and proposed conditions using USACE's HEC-RAS software. The HEC-RAS 2D models were developed using inflows, topography, and roughness values consistent with the NHC regional riverine MIKE FLOOD model (NHC, 2014). Prior studies in the area indicate riverine flow dominates, so the HEC-RAS 2D model was developed considering riverine flow along the I-10 corridor. Flood control improvements, 2D model development, model results, and VDA hydraulics are discussed.

3.1 Flood Control Improvements

3.1.1 Proposed Arena Phase Flood Control Improvements

Flood control improvements were designed for the Arena Phase development to protect the arena and events center from the 100-year flood without increasing flood hazards on downstream properties. **Figure 12** displays key features of the proposed Arena Phase Flood Control Improvements concept plan, which include:

- Raised arena and events center site, which lies 1.5 feet above the adjacent 100-year floodplain elevations
- Diversion channel to golf course, which directs flow upstream of the arena site to the Classic Club golf course
- Culvert and local drainage channel along Varner Road, which collects runoff from Varner Road as well as site runoff
- Outlet channel at the downstream of the SP343 project site, which redistributes flows to match existing conditions

These flood control improvements were designed for the 100-year existing conditions flood event. CVWD's Morongo Wash Diversion is funded and completely planned, and completion is anticipated in the by 2023. The Arena Phase flood control improvements will also function with the Morongo Wash Diversion in place, as the peak flow rates to the project will be significantly reduced. The proposed TPFCP is not funded and is not expected to be built in the next few years. However, the Arena Phase flood control improvements will function with the proposed TPFCP, as the levee upstream of Classic Club can be constructed to route flows through the golf course and the outlet channel at the downstream end of the SP343 project site (shown in **Figure 12**) can be connected with the proposed channel and levee along 38th Street.

3.1.2 Master Drainage Plan Update

The SP343 Master Drainage Plan Update builds on the Arena Phase Flood Control Improvement Plan. In addition to providing flood protection to the arena and events center, the Master Drainage Plan will protect all developed areas from the 100-year flood event. **Figure 13** displays the SP343 Master Drainage Plan Update. The master drainage plan will include all the Arena Phase Flood Control Improvements, in addition to the following:

- Raised remaining planning areas to 1.5 feet above the adjacent 100-year floodplain
- Maintain diversion channel to golf course at the upstream end of Classic Club
- Local drainage channels along Varner Road
- Local drainage channel along east and south boundaries of teardrop parcel (planning area 10)
- Detention basins on the south end of the teardrop parcel and south of Classic Club Boulevard

Since CVWD's Morongo Wash Diversion is funded and completely planned, the project is expected to be constructed in the next few years, prior to complete build out of the SP343 project. Therefore, the proposed Master Drainage Plan is designed for the condition in which the Morongo Wash Diversion is constructed. Similarly to the Arena Phase flood control improvements, the SP343 Master Drainage Plan will function with the TPFCP, as flows can be routed through the golf course and the Classic Club outlet channel can be connected to the proposed levee and channel along 38th Street.

3.2 Riverine Flood Model Description

3.2.1 Two Dimensional Grid

The HEC-RAS 2D grid extends approximately 350 ft upstream of Ivey Ranch Country Club to approximately 2,600 ft downstream of the Classic Club maintenance building. The north and south boundary are parallel to the I-10, with the north and south boundaries approximately 7,200 ft and 2,300 ft from the I-10, respectively. The grid features 25-ft grid cells. Breaklines are used to accurately capture ridges in the model, with grid cell size ranging from 3 ft to 25 ft. A map of the model domain extents is included in **Figure 14**.

3.2.2 Topography

Study area topography consisted of FEMA Riverside County LiDAR data collected in February and March of 2011 (Digital Mapping Inc, 2011). This LiDAR data was used in previous hydraulic modeling of the area, including NHC (2013a) and NHC (2014). This topography is based in NAVD88 and has a 10-ft grid cell resolution. A topographic workmap is included in **Figure 15**. The proposed Arena Phase and Master Drainage Plan terrains were developed by modifying the existing conditions topography to include the conceptual flood control improvements grading developed by PACE (see Section 3.1).

3.2.3 Manning's Roughness

Manning's roughness in the model was defined based on land use. Manning's roughness of 0.05 was used to represent natural desert areas, consistent with previous 2D modeling of the area (NHC, 2014; PACE, 2019). A roughness value of 0.1 was defined for existing structures, including residential areas, which is the standard value used by FEMA. Manning's n was defined as 0.03 for golf courses and proposed soft-bottomed channels, and 0.02 for paved streets and parking lots.

3.2.4 Hydraulic Boundary Conditions

Inflow was introduced at the upstream end of the model across nine inflow lines. These inflow hydrographs were obtained by extracting hydrographs from the NHC existing conditions model at these nine locations. As discussed in Section 2.1.3, inflow hydrographs for the Master Drainage Plan model assumed that the Morongo Wash Diversion is built. Energy grade slope used by HEC-RAS to distribute the flow along the boundary conditions line were approximated by measuring the ground slope at the inflow locations. These slopes ranged from 0.001 to 0.003 ft/ft.

The downstream end of the grid is modeled with normal depth boundary conditions. Six normal depth boundary condition lines are applied to the downstream end of the model to represent areas with different friction slopes. The friction slope was approximated as the average ground slope across each boundary condition line.

Hydraulic boundary conditions are shown on the model domain extents map in **Figure 14**.

3.2.5 Time Step and Simulation Period

The simulation time step used in the HEC-RAS modeling is 0.5 sec, while the interval for hydrographs and mapping output is 3 minutes. The simulation period is 6 hours. Peak flow at the downstream end of the model occurs around 3 hours into the simulation, so this simulation period is sufficient to capture peak flow behavior.

3.3 Hydraulic Model Results

3.3.1 Existing Conditions

Results of the existing conditions 100-year HEC-RAS 2D model, including maximum flow depths, peak flow velocities and maximum water surface elevations are included in **Figures 16, 17, and 18**. Maximum flood depths in natural areas range from 2-6 ft, with most natural flood depths shallower than 4 ft. Depressed areas, such as golf course ponds, borrow pits, and man-made lakes, experience greater flood depths, where depths are greater than 10 ft in some areas. Velocity results reveal peak velocities in natural areas are primarily less than 4 ft/s, with some areas experiencing greater velocities of up to 6 ft/s. Some areas on developed land experience even greater velocities, with the highest velocities noted on roads, such as the I-10 freeway and Varner Road, as well as at the upstream and downstream ends of golf course ponds. The water surface elevations vary from 170 ft at the upstream end of the SP343 development site to 152 ft at the downstream end of the site. Flow rates at the downstream end of the model are included in **Figure 19**, which will be the target flow rate for proposed conditions.

3.3.2 Proposed Arena Phase Flood Control Improvements

100-year flow depths, peak flow velocities and maximum water surface elevations for the Proposed Arena Phase Flood Control Improvements are included in **Figure 20, 21, and 22**, respectively. These results indicate the proposed arena and events center site is dry with the on-site flood control improvements, and thus is protected from 100-year flood hazards. These flood control improvements are described in Section 3.1.1 and include a raised arena and events center, a diversion channel to the golf course, a culvert and local drainage channel along Varner Road, and an outlet channel at the downstream end of the SP343 Area (see **Figure 12**).

Differential exhibits comparing flow depths and flow velocities between existing and proposed arena conditions are included in **Figure 23 and 24**, and are useful in determining the hydraulic impacts of the proposed Arena Phase. Increases in flood depths are noted on SP343 property, including in the proposed golf course diversion channel, at the downstream end of the golf course, in the Varner Rd local drainage channel, and at the proposed outlet channel. Depth decreases are noted upstream of the Arena site, at the Arena site (which is now dry), along Varner Rd, and adjacent to the golf course maintenance building. A small area (less than 0.7 ac) on the border of Classic Club and Coachella Valley Preserve experiences an increase in depth of less than 1 ft. Flood depths on all other areas outside of the project boundary either decrease or are within 0.25 ft of the existing conditions depths. The velocity differential exhibits indicate that proposed velocities are higher in the proposed channels as well as on certain areas of the golf course. Decreases in velocity are noted along Varner Road, adjacent to the golf course maintenance building, and in downstream golf course ponds. Tiny, scattered areas of velocity differences are noted along the I-10 and along Varner Rd, outside of the SP343 project boundary. These differences are artifacts of the modeling caused by slight differences in cell boundary alignments between existing and proposed model grids. There are some small scattered areas of increases and decreases in velocity downstream of the SP343 project boundary, however, these small differences are substantially below 1 ft/s.

Figure 25 displays flow rates at key locations in the model. The proposed diversion channel to the golf course conveys approximately 4,180 cfs, while the culvert at the upstream end of the local drainage channel along Varner Rd conveys restricts flow in the channel to 210 cfs. Flow rates at the downstream boundary of the project site are also displayed on **Figure 25**, and are discussed in further detail in Section 3.2.4.

3.3.3 SP343 Master Drainage Plan Update

Figure 26, 27, and 28, display the proposed Master Drainage Plan 100-year flow depths, flow velocities and water surface elevations. These results demonstrate that all planning areas are removed from the 100-year floodplain, excluding drainage channels, retention basins, and golf course ponds. Therefore the proposed SP343 drainage plan provides flood protection to the development.

Depth and velocity differentials are included in **Figure 29 and Figure 30**, which compare proposed Master Drainage Plan floodplain hydraulics to existing conditions. The depth differential indicates increases in depth are limited to the SP343 project site. Depth increases in proposed channels, proposed detention basins, and in the pond at the downstream end of Classic Club. All other differences in depths between the master plan and existing conditions are decreases. Increases in velocity are noted primarily in proposed channels, though some small areas adjacent to these channels also experience increases, including areas on Varner Road and the I-10 off-ramp. Outside of the property boundaries, the vast majority of the floodplain exhibits decreases in velocity. However, there are a few small, isolated areas with increases in velocity shown on **Figure 30**. When the cells in these areas become wet, the model computes a short spike in velocity, which becomes the maximum velocity in these cells. When these cells stabilize, the velocity drops before smoothly increasing to the peak velocity at the peak of the storm. Therefore, these maximum velocities in these areas do not accurately represent the velocity at the peak of the storm. Comparison of velocities during the peak of the storm indicate that the proposed peak velocities are smaller than in existing conditions.

Figure 31 displays flow rates at key locations. Flow rates at the downstream end of the model have decreased compared to the existing conditions, as discussed in Section 3.2.4. In the master plan condition, the diversion channel to the golf course is expected to convey approximately 3,250 cfs, while the Varner local drainage channel conveys 210 cfs. The inlet channel at the upstream end of the golf course has an estimate peak flow rate of 2,950 cfs in the master plan condition.

3.3.4 Flow Rate Comparison

The peak 100-year flow distributions at the downstream boundary of SP343 were extracted from the HEC-RAS 2D models at four locations: (1) north of Classic Club, (2) the eastern boundary of Classic Club, (3) between Classic Club and the I-10, and (4) south of the I-10. A comparison of these flow rates in the Existing Condition 2020, Proposed Arena Phase Flood Control Improvements, and SP343 Master Drainage Plan Update models is included **Table 4.** Flow rates are also noted on **Figures 19, 25, and 31**.

Table 3: Peak discharges at the downstream end of the SP343 Area

Flow Location[1]	Model Peak Discharge (cfs) Existing Condition 2020	Proposed Arena Phase	Proposed Master Drainage Plan
North of Classic Club	920	920	90
East Boundary of Classic Club	8,440	8,630	3,660
Between Classic Club and I-10	4,160	4,200	2,640
South and on I-10	6,340	6,340	490

Notes:

1. *Flow locations are displayed on* ***Figures 19, 25, and 31.***

Comparison of peak model discharges indicate all Proposed Arena Phase flow rates are within 2% of the existing conditions flow rates. Discharge north of Classic Club and South of the I-10 are maintained. Outflows at the east boundary of Classic Club and between Classic Club and the I-10 increase minimally by 2% and 1%, respectively. Results of the Master Drainage Plan model with the Morongo Wash diversion in place indicate a decrease in flow rate at all four locations at the downstream end of the SP343 project boundary.

These results indicate the Arena Phase and the SP343 Master Drainage Plan Update comply with the California Drainage Law, and do not significantly increase flood hazards on adjacent property. Additionally, Riverside County Planning Department requirements are met, in which natural storage of riverine flows must be preserved so as not to increase downstream flow.

3.3.5 Classic Club Golf Course Retention

Another project requirement outlined by the Riverside County Planning Department is on-site retention of the incremental increase of runoff in the 100-year storm due to paving. The Classic Club golf course provides approximately 465 ac-ft of storage. This retention volume was calculated by summing the retention volume in each pond assuming 1 ft of freeboard. The total land area of the SP343 project is approximately 216 acres, not including the golf course. Therefore, the storage volume in the golf course is more than enough to retain the incremental runoff in the 100-year storm event. This finding is consistent with the VDA (2005) analysis.

3.4 Van Dell and Associates, Inc. (2005) Hydraulic Modelling

3.4.1 Van Dell and Associates, Inc. (2005) Modelling Summary

VDA (2005) developed regional and localized steady-state HEC-RAS 1D models to evaluate the hydraulic impacts of the SP343 project using USACE (2000) peak flow rates. Regional models were used to determine the hydraulic impacts upstream and downstream of the project to ensure the flood hazards are not increased off-site. The regional HEC-RAS models considered four conditions: (1) existing conditions, (2) existing conditions with USACE levee/channel system in place, (3) Classic Club golf course without USACE levee/channel system, and (4) Classic Club golf course with the USACE levee/channel system in place. The regional model is an update of the USACE (2000) model developed for the Whitewater River Basin Feasibility Study. The regional study does not account for separation and recombination of flow throughout the golf course, but provides an average water surface elevation at each cross-section. HEC-RAS models were run in the subcritical flow regime, in which calculations begin at the downstream end of the model. Thus, the addition of the golf course did not change downstream hydraulics in the VDA HEC-RAS 1D model. A small decrease in water surface elevation was noted at a cross section upstream of the golf course, which VDA states could propagate upstream due to the subcritical flow regime. VDA concludes the SP343 project causes minimal to no change in water surface elevations upstream and downstream of the project.

A more detailed analysis of the Classic Club golf course was included in the steady-state 1D localized model, which modeled sub-conveyances defined by grading plans to allow for separation and recombining of flow. This subcritical model was used to simulate the 100-year flood event in the Classic Club golf course with and without the USACE levee/channel system. Development pads and top of berm elevations were designed to be 1.5 ft and 3 ft, respectively, above adjacent water surface elevations.

3.4.2 Comparison of PACE and VDA Hydraulic Analyses

While both PACE and VDA developed hydraulic models using USACE's HEC-RAS software, the modelling approaches differ; PACE developed two-dimensional, unsteady models, whereas VDA analyzed one-dimensional, steady, subcritical models. The PACE HEC-RAS 2D unsteady models provide a more accurate assessment of the hydraulic impacts of the project. Additionally, the PACE models include updated flood control improvements on-site and upstream of the project. Primary differences of the PACE and VDA modelling approaches are as follows:

- **Two-dimensional flow:** Two-dimensional models are well-suited for the Coachella Valley, which lacks defined channels and experiences shallow inundation with uncertain flow paths. Two-dimensional models allow flow in any direction, as opposed to 1D models, where flow must travel perpendicular to the cross-section. The 2D PACE models allow flow to travel around the project site as well as enter and exit the project along the entire boundary. Thus, PACE models can be used to more accurately predict off-site flows compared with VDA models, where all flow is assumed tributary to the Classic Club golf course.
- **Spatially-varied hydraulics:** 2D models define spatially-varied hydraulic parameters as opposed to average parameters such as water surface elevations across cross-sections. This allows for a more detailed comparison of hydraulic impacts compared with the VDA regional model. While the VDA localized model allowed for separation and recombining flow, the model was not able to define off-site hydraulic impacts. Additionally, 2D models are better able to define sub-conveyance paths and allow flow to travel between sub-conveyances.

- **Flow attenuation:** PACE models allow for attenuation of flow throughout the model, which is not considered in the VDA 1D models. This attenuation allows for a comparison of project outflows between existing and proposed conditions, which was not possible using VDA 1D models.
- **Mixed flow regime:** Contrary to the VDA subcritical HEC-RAS 1D models, PACE 2D models allow for both supercritical and subcritical flow. This mixed flow regime, along with the effects of attenuation, spatially-varied hydraulics, and two-dimensional flow, allow determination of hydraulic impacts downstream of the project site. The 1D steady-state VDA models determined no downstream impacts, since subcritical flow calculations start at the downstream end of the model, which is the same in all models.
- **Updated flood control improvements:** PACE added to flood control improvements modelled by VDA to ensure the proposed arena and events center, as well as the remaining SP343 planning areas, are protected from the 100-year flood. These changes are summarized in Section 3.1 for both the Arena Phase improvements and the Master Drainage Plan.
- **Proposed regional flood control improvements:** VDA modelled the proposed and existing conditions with the proposed USACE levee/channel system, assuming it would be constructed in the few years following the 2005 study. While CVWD has commissioned further studies on the levee/channel system since 2005, the system does not have funding and will likely not be built in the next few years. Thus, PACE modelling does not include the levee/channel system, though the levee/channel system would function with the proposed Arena Phase flood control improvements and Master Drainage Plan. However, CVWD has complete plans of a diversion at Morongo Wash, which will likely be constructed in the next few years, prior to full build out of the SP343 project. Therefore, PACE designed and modelled the Master Drainage Plan assuming the Morongo Wash Diversion in place.

Despite differences in approaches and flood control improvements, the PACE analysis reaches the same conclusions as the VDA analysis, for both the Arena Phase and SP343 Master Drainage Plan:

1. The SP343 project causes does not increase flood risk on adjacent property.
2. The SP343 project maintains or reduces flow rates downstream of the project site.
3. Proposed developments and top of berms are designed to be 1.5 ft and 3 ft, respectively, above adjacent 100-year water surface elevations.
4. Classic Club Golf course provides adequate storage for the incremental increases in runoff due to paving.

4 Sedimentation

Sediment transport in the vicinity of the SP343 project has been analyzed by several studies (SLA, 2000; NHC 2004; PB, 2013; NHC, 2016). PACE reviewed these studies to determine whether sediment deposition and/or bulking of flows should be incorporated in the hydraulic analysis of the SP343 project. Prior sediment transport studies indicate very small 100-year sediment volumes compared to flow volumes at distal areas of the alluvial fans, including at the SP343 project site. These results suggest bulking of flow is not required in the current study and sediment deposition is negligible. **Table 4** summarizes prior sediment studies, including sediment transport calculation methods and results.

Table 4: Summary of sediment transport studies in the project vicinity

Reference	Flood Event	Method	Results
SLA, 2000	100-year flows from Morongo and Long Canyon	• Applied bed and suspended load sediment transport functions to representative sediment samples	• Sediment transport rate < 1% of total flow • Bulking factor: 1.00
NHC, 2004; Shvidchenko et al., 2006	100-year alluvial fan flows from Indio Hills	• Developed MIKE-21 model to determine alluvial fan hydraulics • Used Ackers and White (1973) total sediment load function	• Sediment transport capacity at Sun City greenbelt: 8,100 tons • Sediment volume < 1% of flow volume
PB, 2013	100-year alluvial fan flows from Indio Hills	• Used Los Angeles Debris Method, with NOAA Atlas 14 precipitation values	• Debris volumes at CP: 2.8 AF to 370 AF • Bulking factors at CP[1]: 1.04 to 1.09
NHC, 2016	5-, 10-, 25-, 50-, and 100-year I-10 riverine flows and alluvial fan flows from Indio Hills	• Obtained hydraulic data from MIKE 21 models (NHC, 2013a) • Used Ackers and White (1973) sediment transport function as modified by Ackers (1993)	• 100-year sediment at Classic Club: 410 tons • Sediment volume < 1% of flow volume[2] • Sediment deposition thickness at Classic Club[3]: <0.001 ft

Notes:
1. *Bulking factors calculated by NHC (2014) using reported debris and flow volumes.*
2. *Sediment volume calculated by PACE assuming a sediment density of 165 lb/ft^3.*
3. *Sediment deposition calculated by NHC assuming even thickness across the golf course.*

In 2000, Simons, Li & Associates (SLA) developed a sediment transport study to analyze Alternative 2 of the USACE Whitewater River Basin Evaluation Analysis. Results of their study indicate small volumes of sediment, which make up less than 1% of the total flow volume, suggesting bulking factors are not required (see **Table 4**). NHC (2014) reviewed the SLA (2000) report, and stated SLA calculations are suitable for distal areas of the Morongo Wash Fan, even though wash loads were not considered in SLA calculations. NHC concludes that hyper-concentrated flow is not expected, so no bulking factors were applied to the NHC (2014) hydraulic models.

NHC (2004) completed a fluvial analysis of the reach of Coachella Valley between Thousand Palms and Sun City developments to analyze sediment transport with and without the USACE levee/channel system (see also Shvidchenko et al., 2006). Shvidchenko et al. (2006) reports that in the 100-year flood, a small fraction of sediment transport capacity at the fan apices, approximately 8,100 tons of sediment, reaches the Sun City greenbelt at the margin of the fans (see **Table 4)**. NHC (2013a) compared the sediment transport load reported by NHC (2004) to the 100-year flood volume and determined bulking factors are not required for design flows at Sun City Desert, which is at the margin of the fan. The SP343 is also at the margin of the alluvial fans, suggesting bulking factors are similarly not required.

Parsons Brinckerhoff (PB) estimated 100-year debris yield to nine concentration points on the alluvial fans in the vicinity of Classic Club (PB, 2013) using the Los Angeles Debris Method, NOAA Atlas 14 precipitation values, area-transposition factor of 0.5, and a fire factor of 3. These calculations estimate the debris yield trapped in the sediment basin, and thus does not include wash load sediments. 100-yr debris yield volumes ranged from 2.8 ac-ft to 370 ac-ft for the different concentration points, with the Thousand Palms Canyon concentration point yielding considerably more debris than the adjacent fans (see **Table 4**). NHC (2014) reviewed the PB study, and calculated bulking at the concentration points ranging from 1.04 to 1.09 based on reported debris yield and flow volumes. NHC states that total sediment yield is underestimated by the Los Angeles Debris Method, and recommend a bulking factor of 10% at fan apices, where flow is hyper-concentrated. However, NHC (2014) reports that bulking factors are not required at the margins of the fans, where flow is not confined.

NHC (2016) completed a sediment study for the TPFCP using hydraulic data from MIKE 21 models, developed previously by NHC (2013a). The results of the NHC (2016) study indicate that 410 tons of sediment reaches Classic Club in the 100-year storm (see **Table 4**). Assuming a sediment density of 165 lb/ft^3, this value equates to approximately 0.1 ac-ft of sediment, which is well below 1% of the 100-year flow volume. This small quantity of sediment indicates bulking factors are not required for peak design discharges. NHC (2016) also analyzed the average deposition thickness of sediment, assuming sediment is distributed evenly over the 220-acre golf course. The deposition thickness is less than 0.001 ft for all storm events.

Previous studies in the vicinity of the SP343 development indicate that normal streamflow occurs at the distal areas of the fan, where flows are not confined or hyper-concentrated. In these areas, sediment make up a very small fraction of the flow, and bulking factors are not required. Thus, bulking factors are not applied to peak flows in this study. Additionally, NHC (2016) show that sediment deposits in the Classic Club golf course is are negligible, at less than 0.001 ft. Thus sediment deposition is not considered in hydraulic models for this report. This is consistent with the VDA (2005) study, which did not include sediment transport calculations or bulking of flow.

5 Conclusions

This report discusses the updated hydrology and hydraulic analyses of flood control improvement concept plans for the NorthStar Specific Plan 343 project in Coachella Valley, California. A proposed Specific Plan Amendment would allow the construction of an arena and events center in the next phase of development and reduce the amount of industrial park development. Updated hydraulic modelling is presented to reflect this proposed Specific Plan Amendment, to incorporate results of recent approved hydrology and regional hydraulics studies, and to adhere to the latest standards set by Riverside County and CVWD.

PACE developed two-dimensional HEC-RAS models using approved CVWD hydrology developed by NHC (2014) for the 100-year riverine flow along the I-10 corridor. The existing condition, which includes the existing Classic Club golf course and golf club house, was modeled to develop baseline hydraulics for the area. The Proposed Arena Phase Flood Control Improvements were modelled, which include a raised arena and events center, a diversion channel to the golf course, a culvert and local drainage channel along Varner Road, and an outlet channel to distribute flows at the downstream end of the project site. Finally, the Proposed SP343 Master Drainage Plan Update was modelled, which includes the Arena Phase improvements in addition to raised remaining planning areas, maintained diversion channel to golf course, local drainage channels along Varner Road, local drainage channels along the teardrop parcel, and detention basins at the teardrop parcel and adjacent to Classic Club Boulevard. Since CVWD's Morongo Wash Diversion is expected to be constructed prior to full build out of the SP343 project, the Master Drainage Plan Update is modelled assuming the Morongo Wash Diversion is in place. The proposed Thousand Palms Flood Control Project is not expected to be built in the next few years, however, the Arena Phase flood control improvements and SP343 Master Drainage Plan are design to function with the proposed TPFCP, as the proposed levee upstream of Classic Club can be constructed to route flows through the golf course and the outlet channel at the downstream end of the SP343 project site can be connected with the proposed channel and levee along 38th Street. PACE analyzed prior sediment transport studies in the project vicinity to determine bulking of flows is not required and sediment deposition on the SP343 area is minimal.

Results of the 2D models demonstrate that the Arena Phase Flood Control Improvements provides flood protection for the arena and events center, prior to development of remaining planning areas. The Master Drainage Plan is shown to provide flood protection to all development areas. Additionally, the proposed arena phase flood control improvements showing a slight increase in outflow of less than 2% compared with existing conditions, while the outflows are decreased in the master plan condition. Finally, depth and velocity differentials show minimal to no increases off-site.

PACE's HEC-RAS 2D models differ from VDA's (2005) HEC-RAS 1D steady-state, subcritical models. PACE models allow for more accurate assessment of off-site hydraulic impacts, due to the two-dimensional flow, spatially-varied hydraulics, flow attenuation, and mixed flow regime. Additionally, PACE models include updated on-site flood control improvements and consideration of the Morongo Wash Diversion. Despite these differences in modelling approaches, conclusions the 2005 VDA study and this current study, for both the Arena Phase and full build out of the SP343 project, are the same: (1) the SP343 project does not increase flood risk on adjacent property, (2) the SP343 project maintains or reduces flow rates downstream of the SP343, (3) the proposed developments are designed to be above the 100-year water surface elevations, and (4) incremental increases in runoff due to paving can be retained in the golf course. These findings demonstrate that the Specific Plan Amendment does not cause any new or substantially more severe impacts than previously identified in the 2005 hydrology and hydraulics analysis (VDA, 2005).

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BERGER FOUNDATION

VICINITY MAP

Figure 1

PACE Advanced Water Engineering

0 2,000 4,000 8,000 Feet

Date: 10/28/2020

Job Number: A000

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

This map may reflect more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

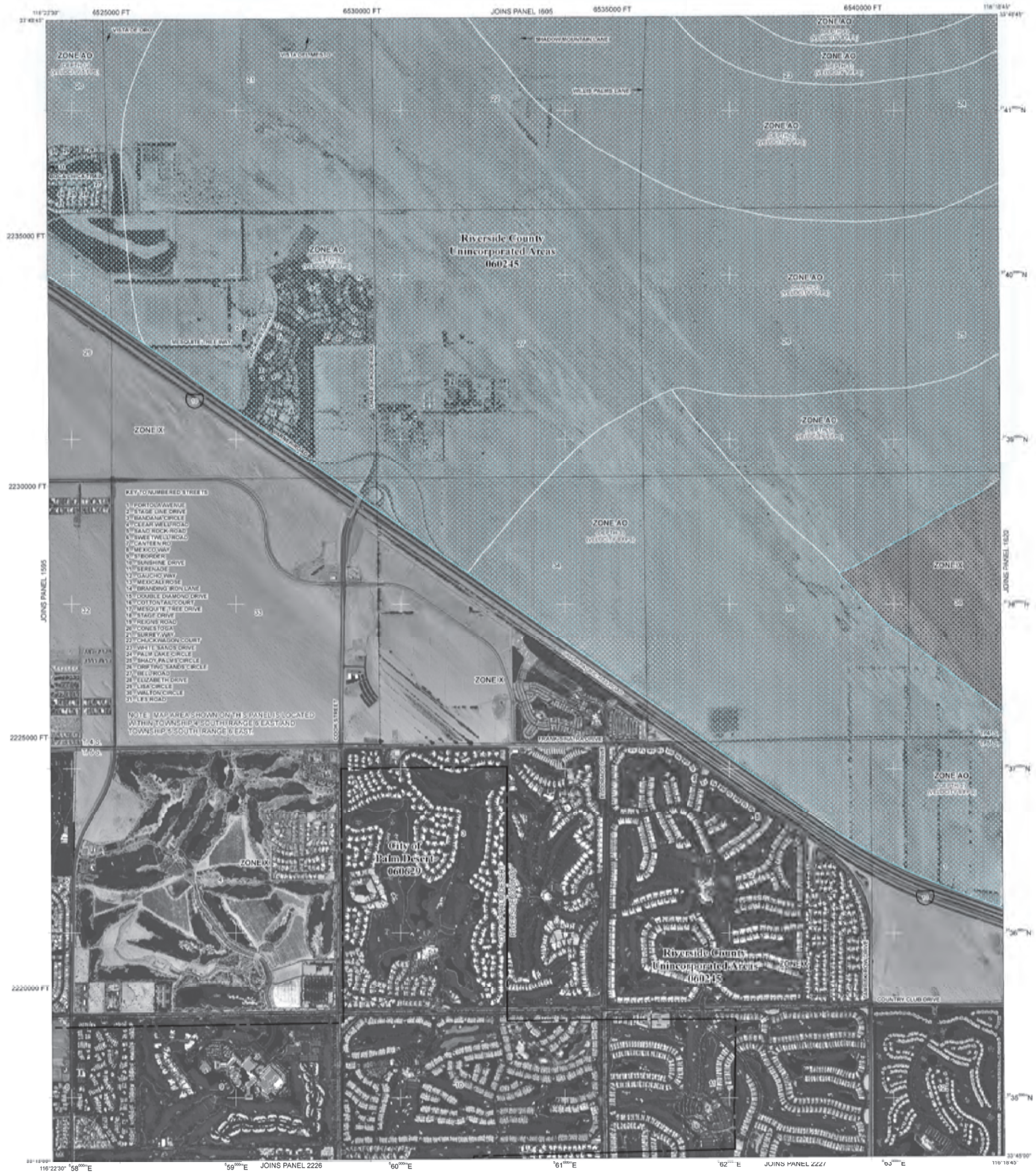
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

Figure 2:
Effective FIRM
Panel 06065C15G



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
76000mN	1000-meter Universal Transverse Mercator grid values, zone 11N
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1615G

FIRM
FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1615 OF 3805
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PALM DESERT, CITY OF	060629	1615	G
RIVERSIDE COUNTY	060245	1615	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06065C1615G

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

BERGER FOUNDATION

FEMA FLOOD HAZARD MAP

PACE

0 2,500 5,000 10,000 Feet

Date: 10/28/2020

Job Number: B695

Figure 3

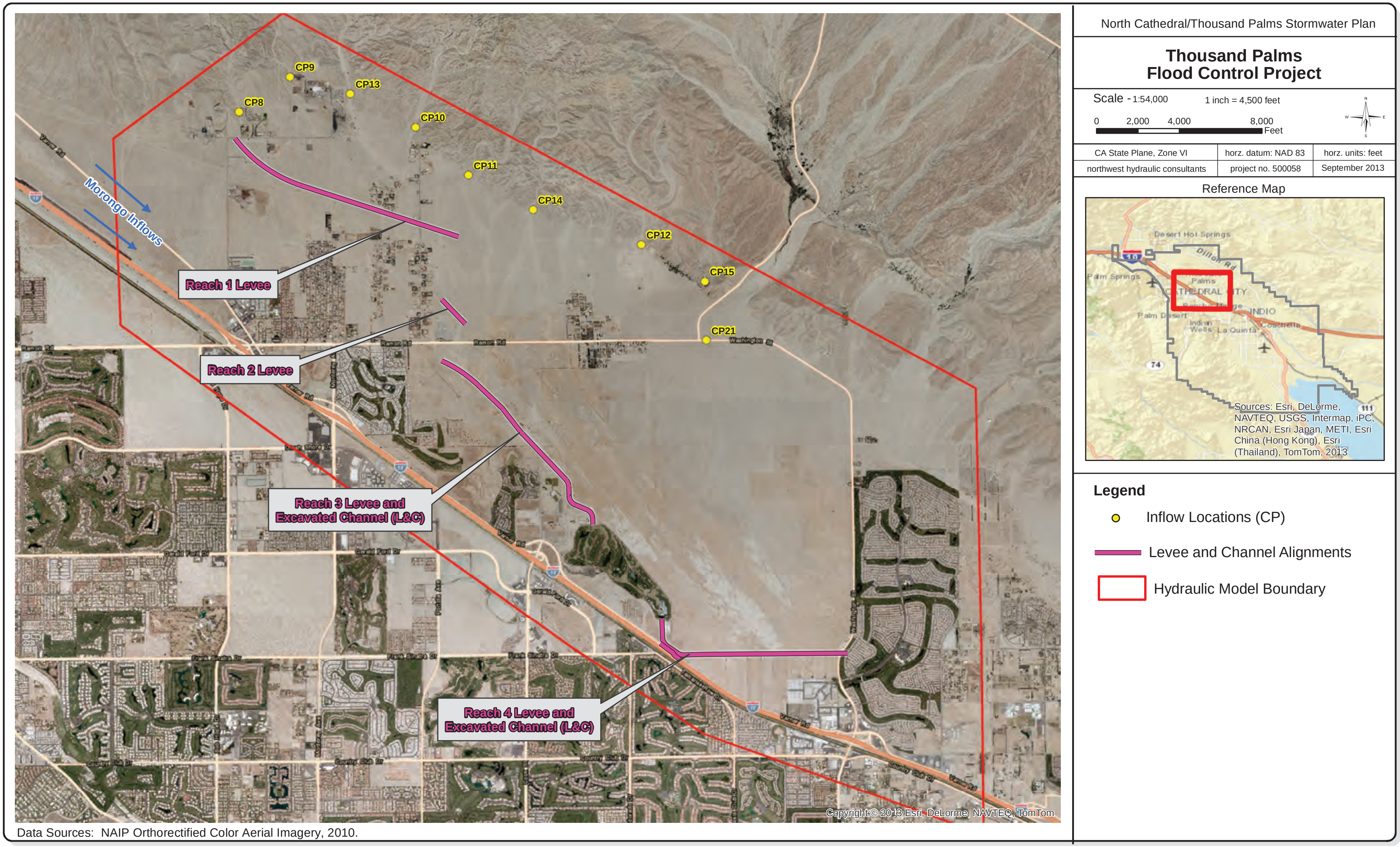


Figure 4: Thousand Palms Flood Control Project Levee Alignment (NHC, 2013a)

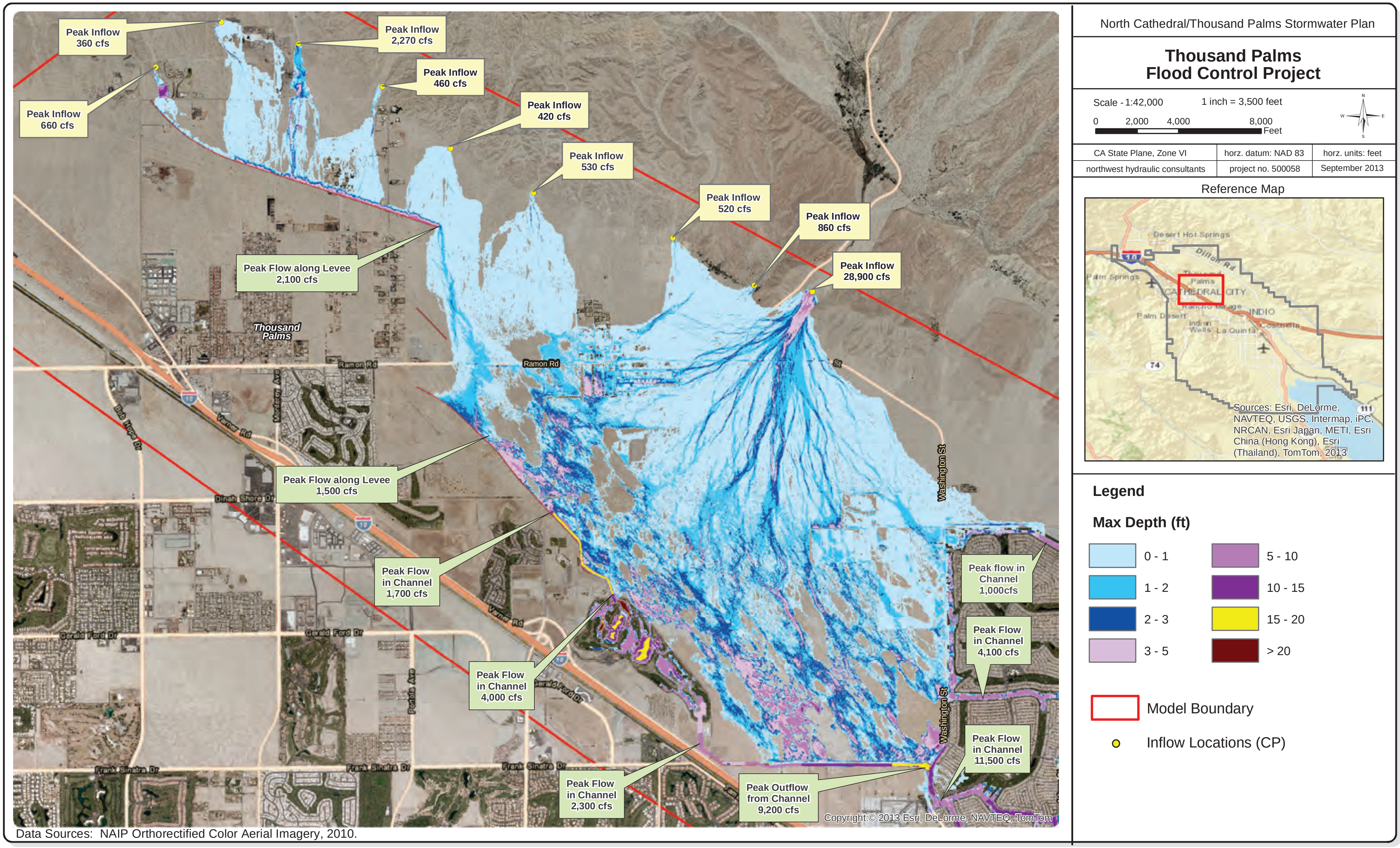


Figure 5: NHC Thousand Palms Flood Control Project MIKE Model Results (NHC 2013a).

Project Conditions, Thousand Palms Canyon Storm Centering, 5 m Grid

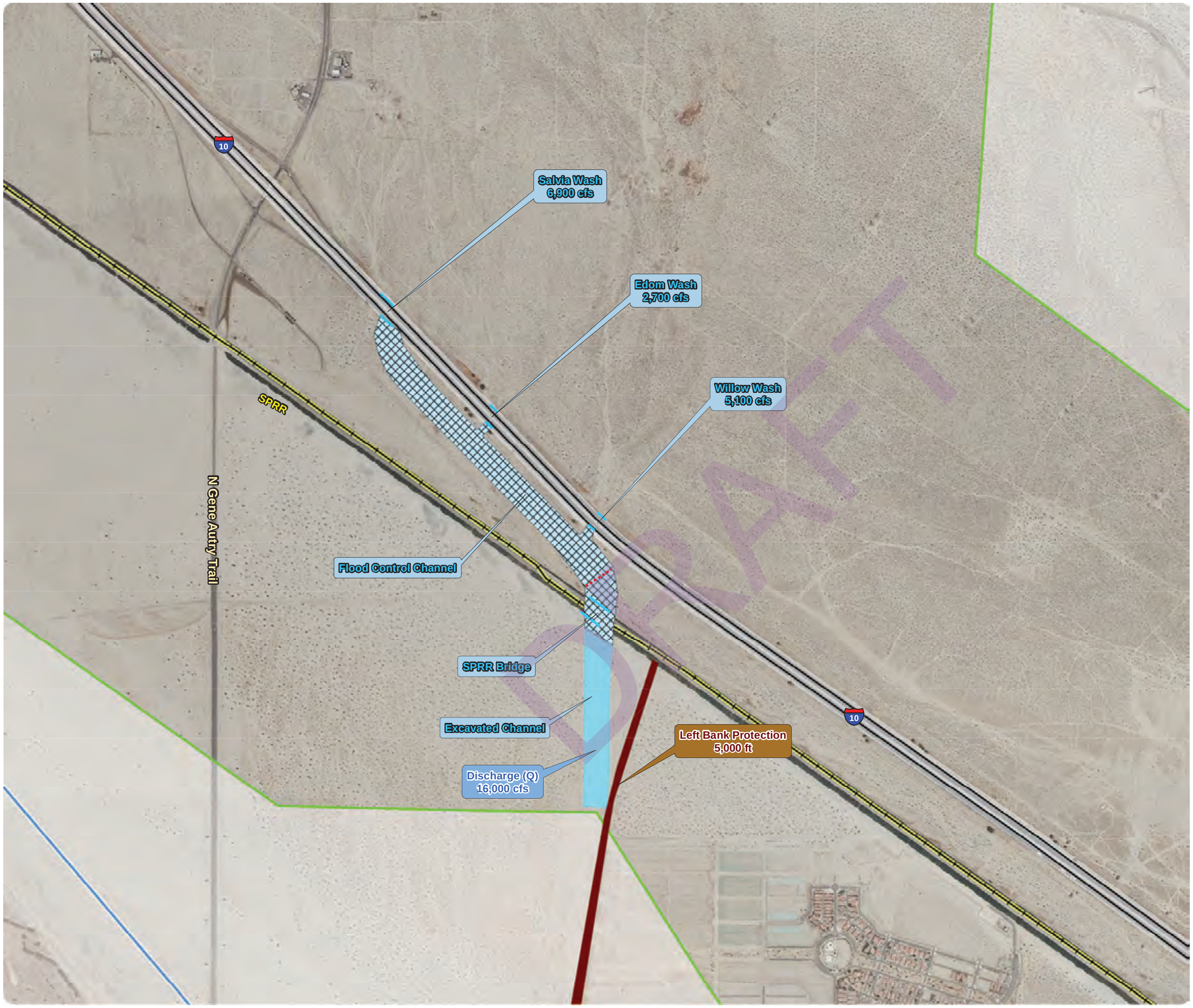
North Cathedral/Thousand Palms Stormwater Plan

Figure 6: North Cathedral/Thousand Palms Stormwater Plan Alternative 1 Proposed Layout (NHC 2013b).

Scale - 1:13,703   1 inch = 1,142 feet

0   500   1,000   2,000 Feet

CA State Plane, Zone VI	horz. datum: NAD 83	horz. units: feet
northwest hydraulic consultants	project no. 500058	September 2013



Reference Map

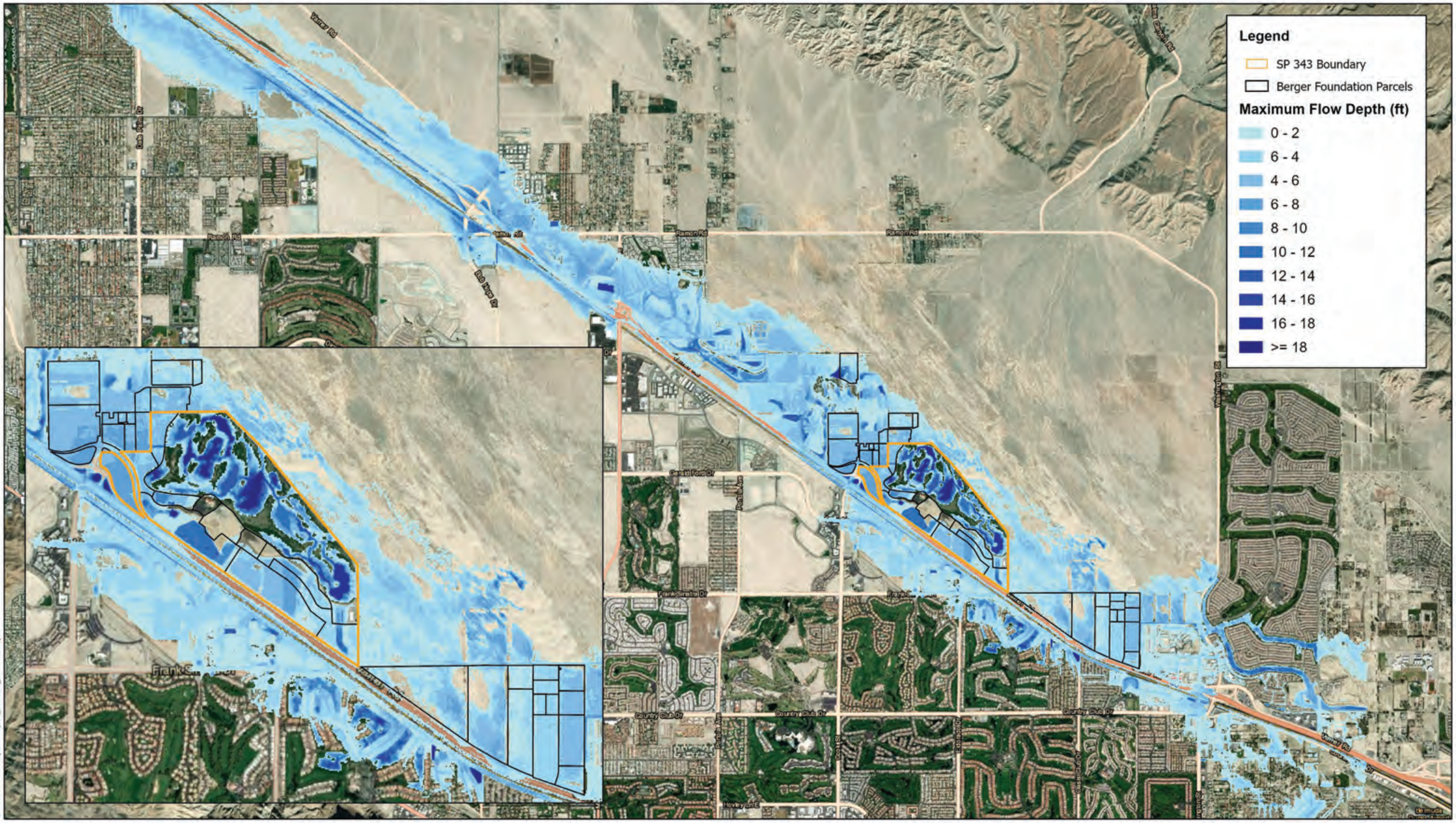
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

LEGEND

- Model Boundary
- Roads
- Railroads
- Drop Structure

Data Sources: NAIP Orthorectified Color Aerial Imagery, 2010. County of Riverside Roads, 04/2013.

nhc



BERGER FOUNDATION

REGIONAL EXISTING 100-YEAR RIVERINE NHC MIKE MODEL WITH SP 343 BOUNDARY

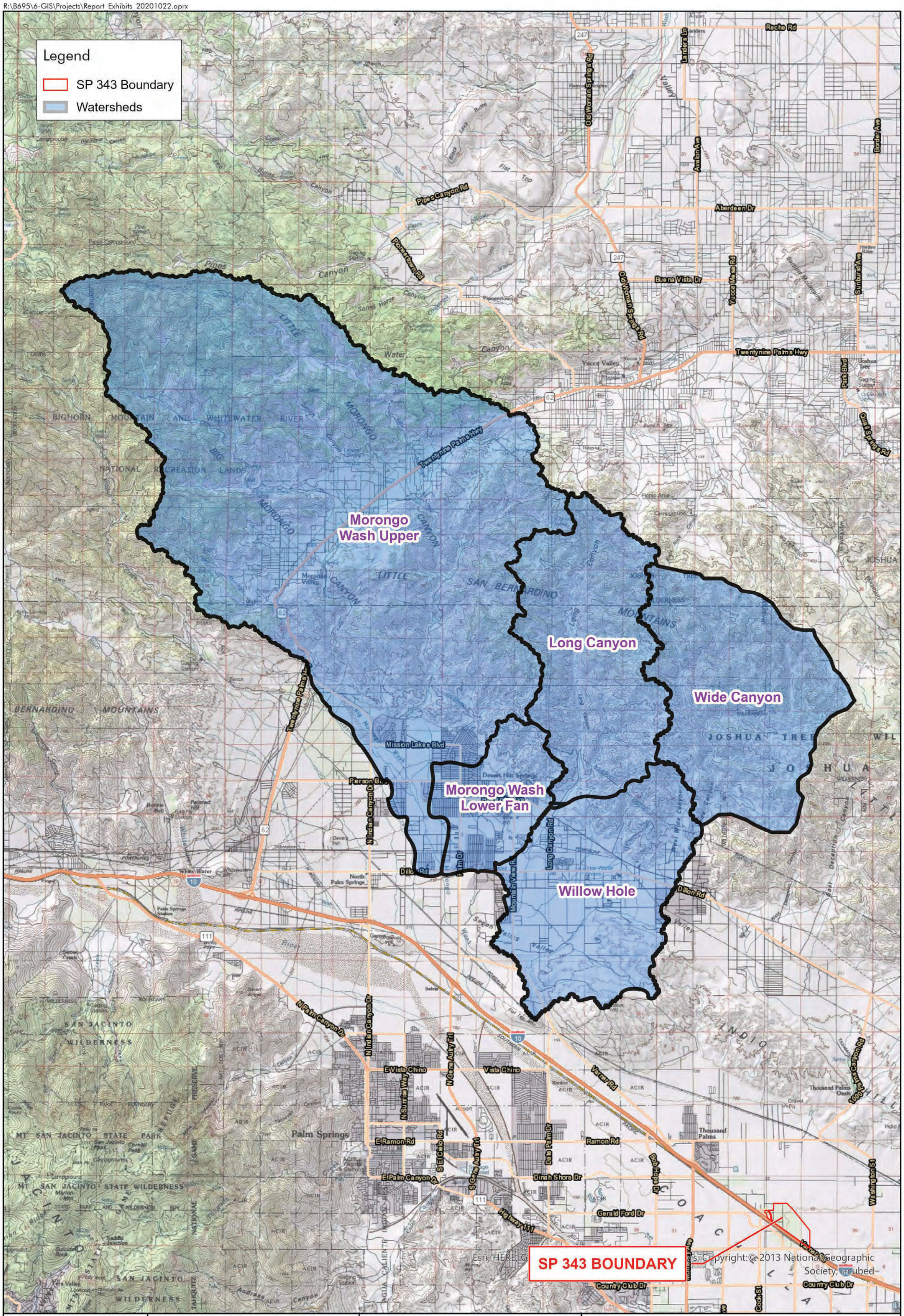
Figure 7

0 2,000 4,000 8,000 Feet

Date: 10/28/2020

Job Number: B695

R:\B695\6-GIS\Projects\Report Exhibits 20201022.aprx



PACE
Advanced Water Engineering

Job Number B695
Drawn By sfifield

0 1.25 2.5 5
Miles

Date: 10/28/2020

BERGER FOUNDATION

RIVERSIDE CO. CA

Figure 8
REGIONAL/RIVERINE WATERSHEDS

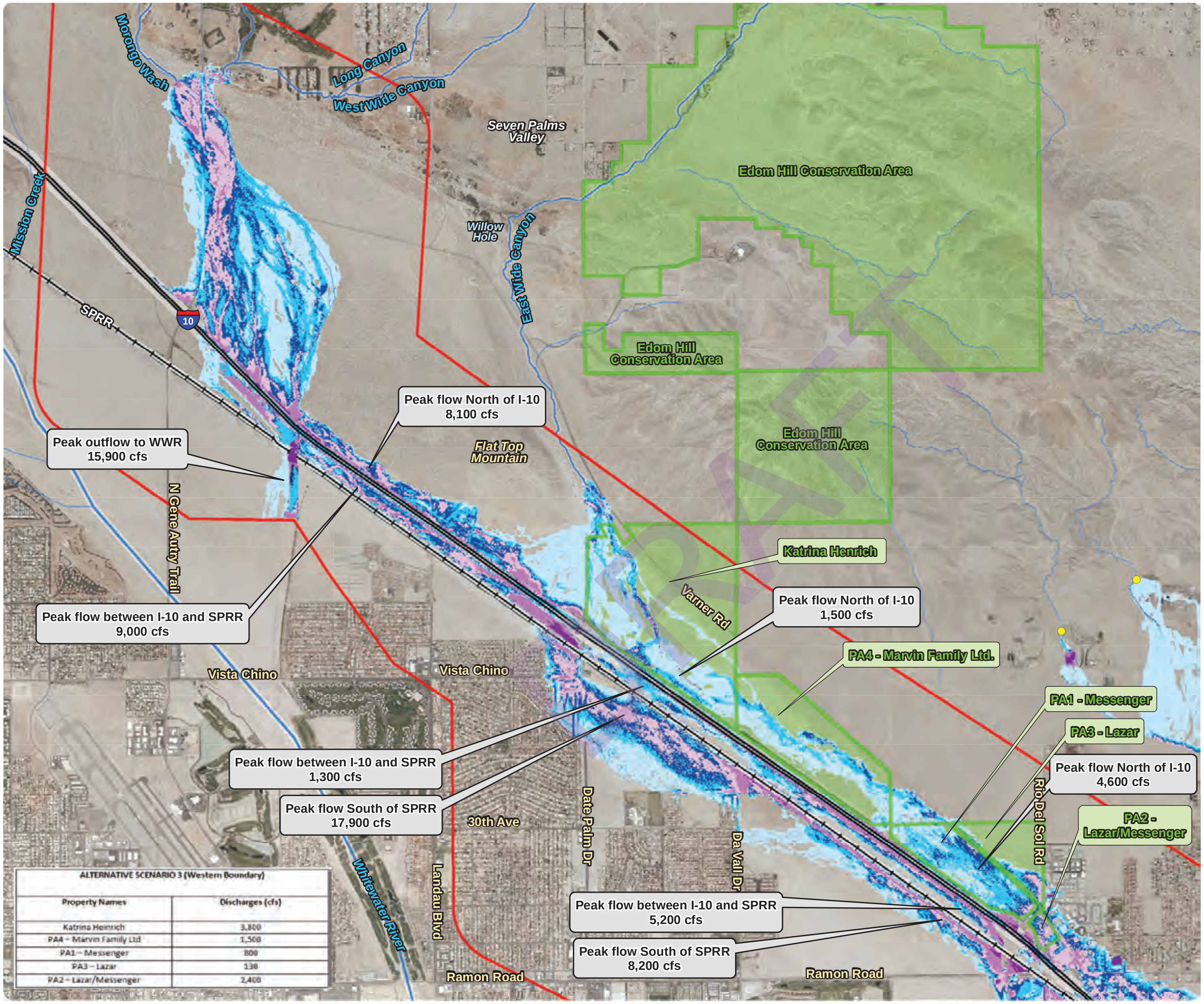
North Cathedral/Thousand Palms Stormwater Plan

Figure 10a: Proposed North Cathedral/Thousand Palms Stormwater Plan Alternative 1 MIKE Results (NHC 2013b).

Scale - 1:42,000   1 inch = 3,500 feet

0 1,750 3,500 7,000 Feet

CA State Plane, Zone VI	horz. datum: NAD 83	horz. units: feet
northwest hydraulic consultants	project no. 500058	September 2013

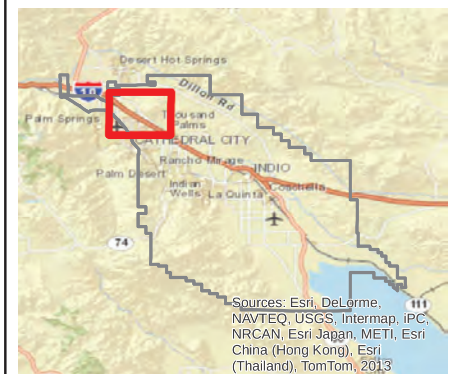


ALTERNATIVE SCENARIO 3 (Western Boundary)

Property Names	Discharges (cfs)
Katrina Heinrich	3,800
PA4 – Marvin Family Ltd	1,500
PA1 – Messenger	800
PA3 – Lazar	130
PA2 – Lazar/Messenger	2,400

Data Sources: NAIP Orthorectified Color Aerial Imagery, 2010. County of Riverside Roads, 04/2013.

Reference Map



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Model Boundary

Roads

Depth (in feet)

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 +

nhc

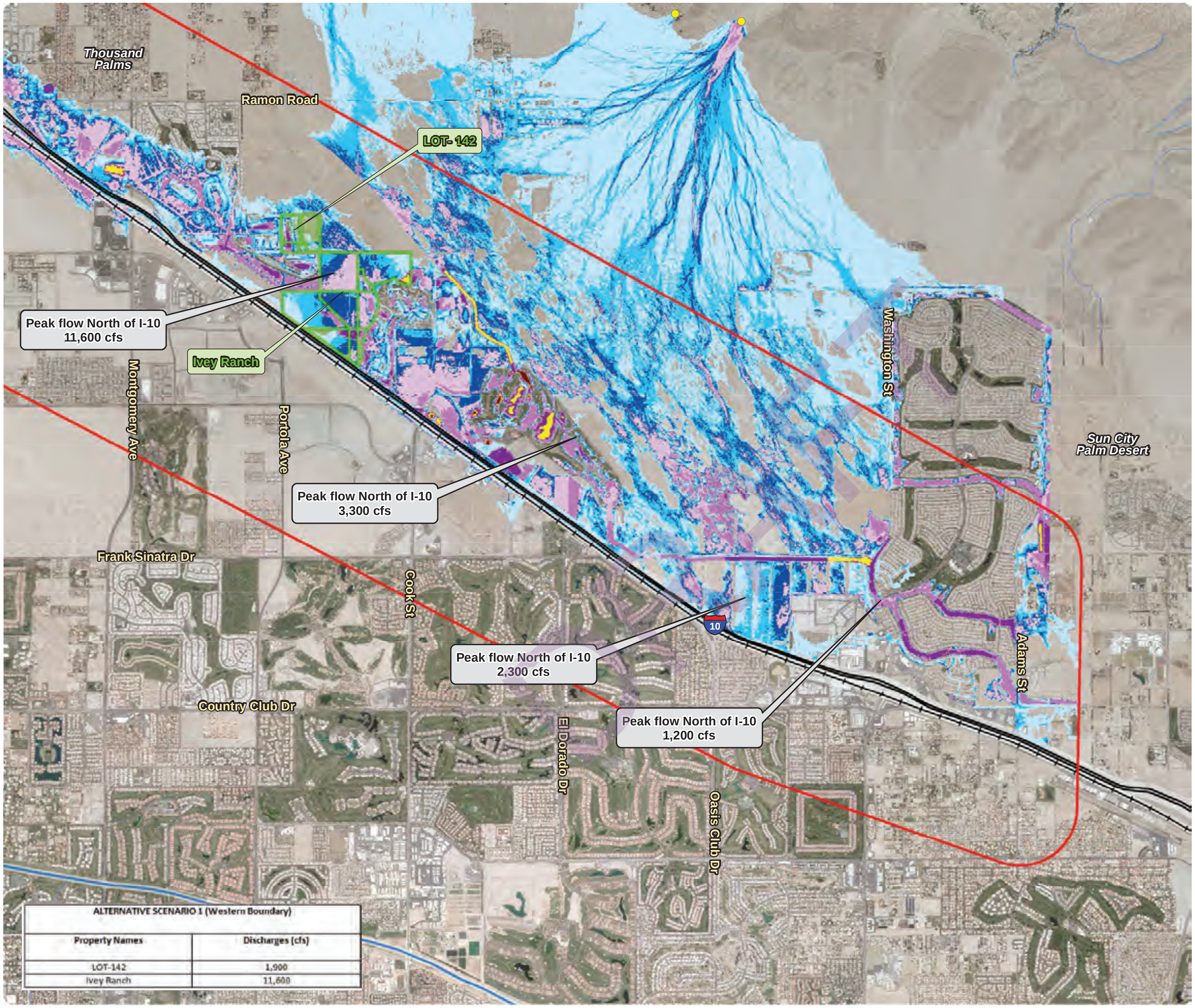
North Cathedral/Thousand Palms Stormwater Plan

Figure 10b: Proposed North Cathedral/Thousand Palms Stormwater Plan Alternative 1 MIKE Results (NHC 2013b).

Scale - 1:42,000 1 inch = 3,500 feet

0 1,750 3,500 7,000 Feet

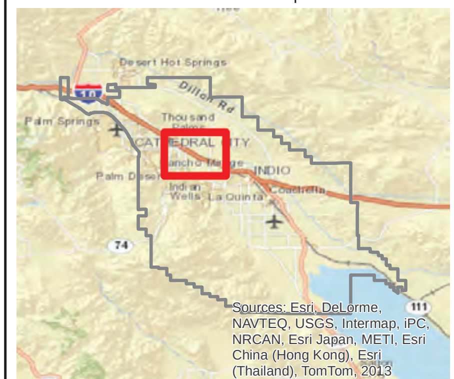
CA State Plane, Zone VI	horz. datum: NAD 83	horz. units: feet
northwest hydraulic consultants	project no. 500058	September 2013



ALTERNATIVE SCENARIO 1 (Western Boundary)	
Property Names	Discharges (cfs)
LOT-142	1,900
Ivey Ranch	11,600

Data Sources: NAIP Orthorectified Color Aerial Imagery, 2010. County of Riverside Roads, 04/2013.

Reference Map



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

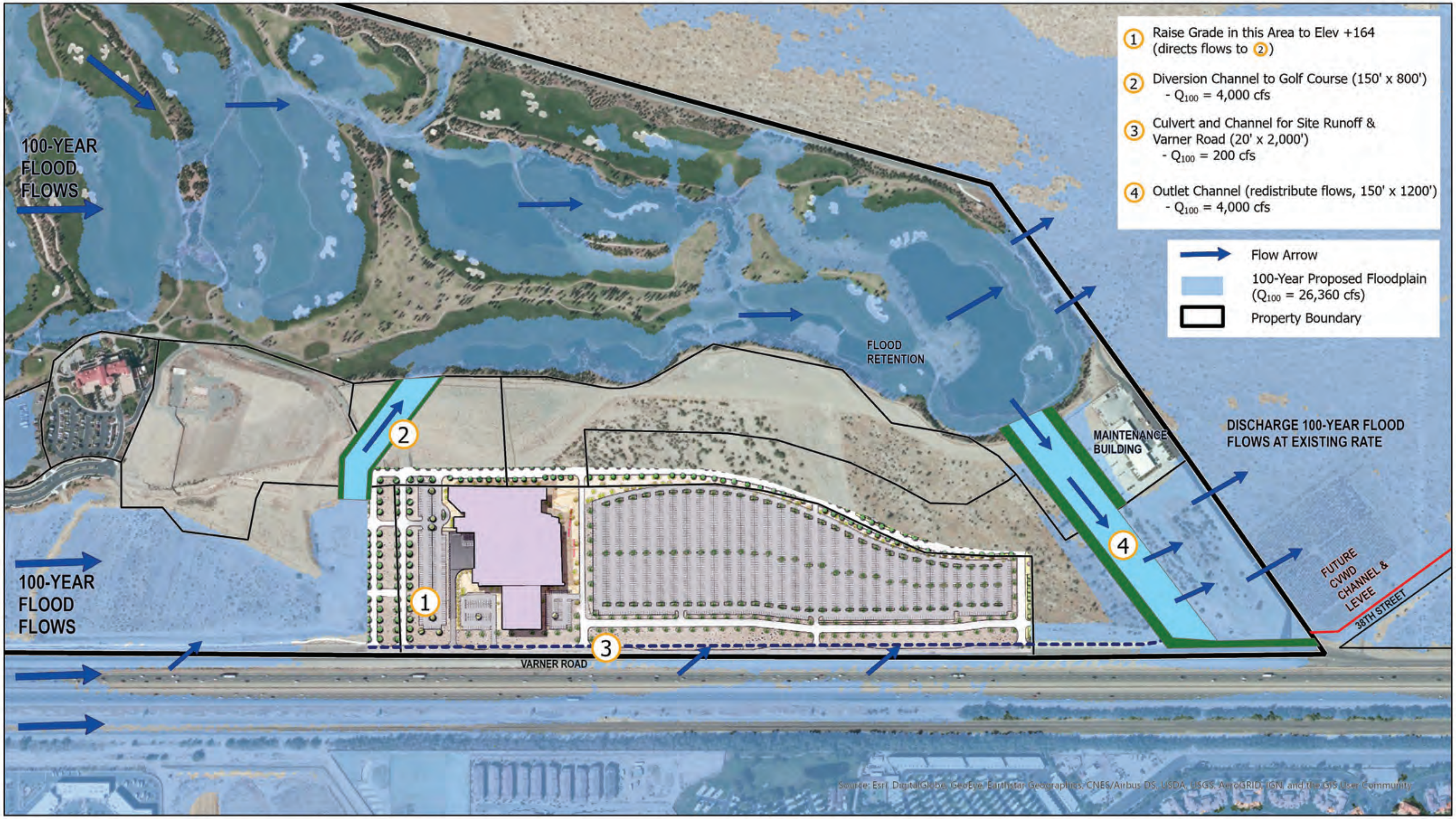
LEGEND

- Model Boundary
- Roads

Depth (in feet)

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 +

nhc



BERGER FOUNDATION

PROPOSED ARENA PHASE FLOOD CONTROL IMPROVEMENT PLAN

PACE

0 200 400 800 Feet

Date: 11/2/2020

Job Number: B695

Figure 12

BERGER FOUNDATION

SP 343 MASTER DRAINAGE PLAN

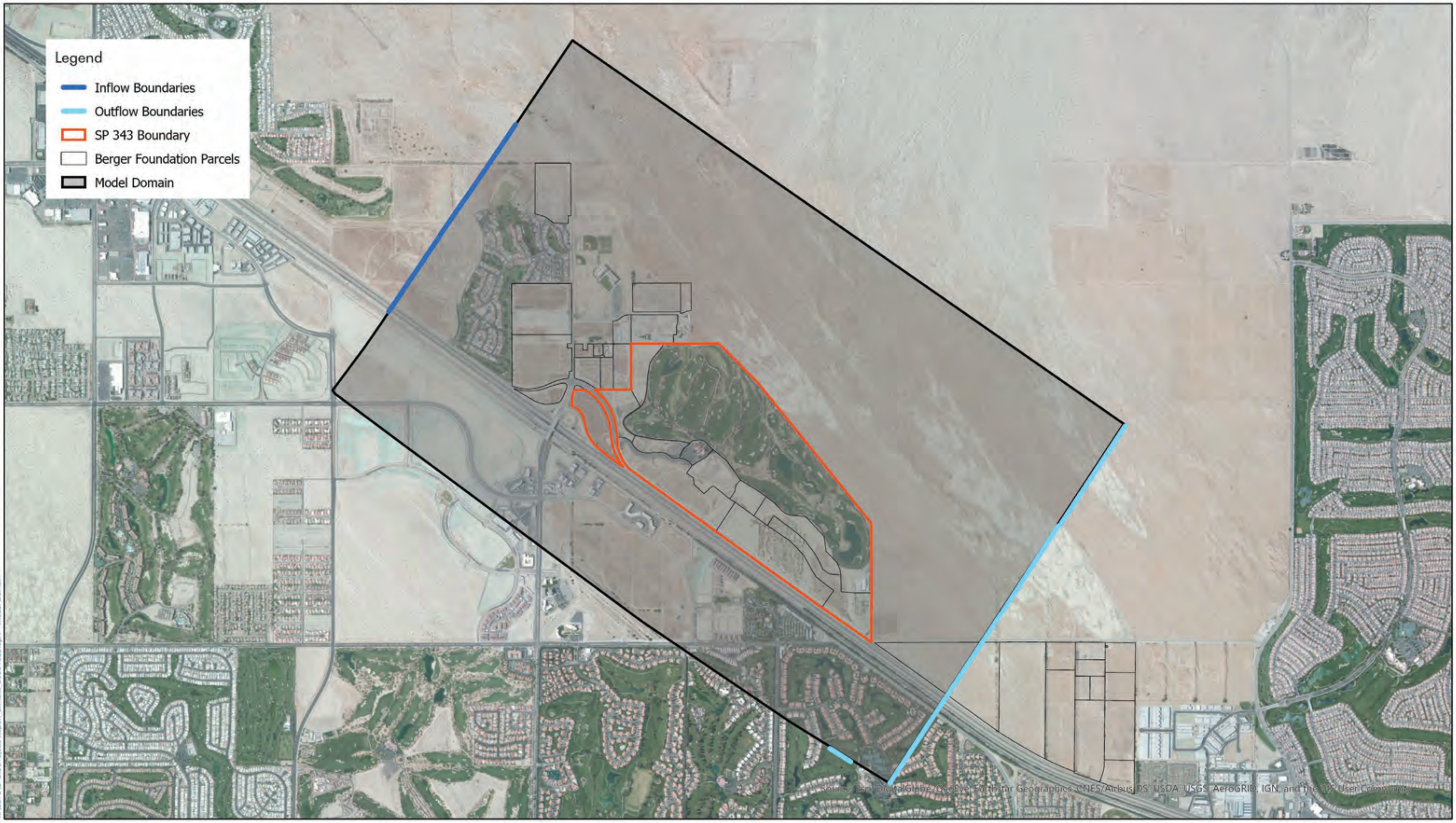
Figure 13

PACE Advanced Water Engineering

0 325 650 1,300 Feet

Date: 11/2/2020

Job Number: B695



BERGER FOUNDATION

HEC-RAS 2D
MODEL DOMAIN

Figure 14

PACE Advanced Water Engineering

0 1,000 2,000 4,000 Feet

Date: 10/28/2020

Job Number: B695

BERGER FOUNDATION

TOPOGRAPHIC WORKMAP

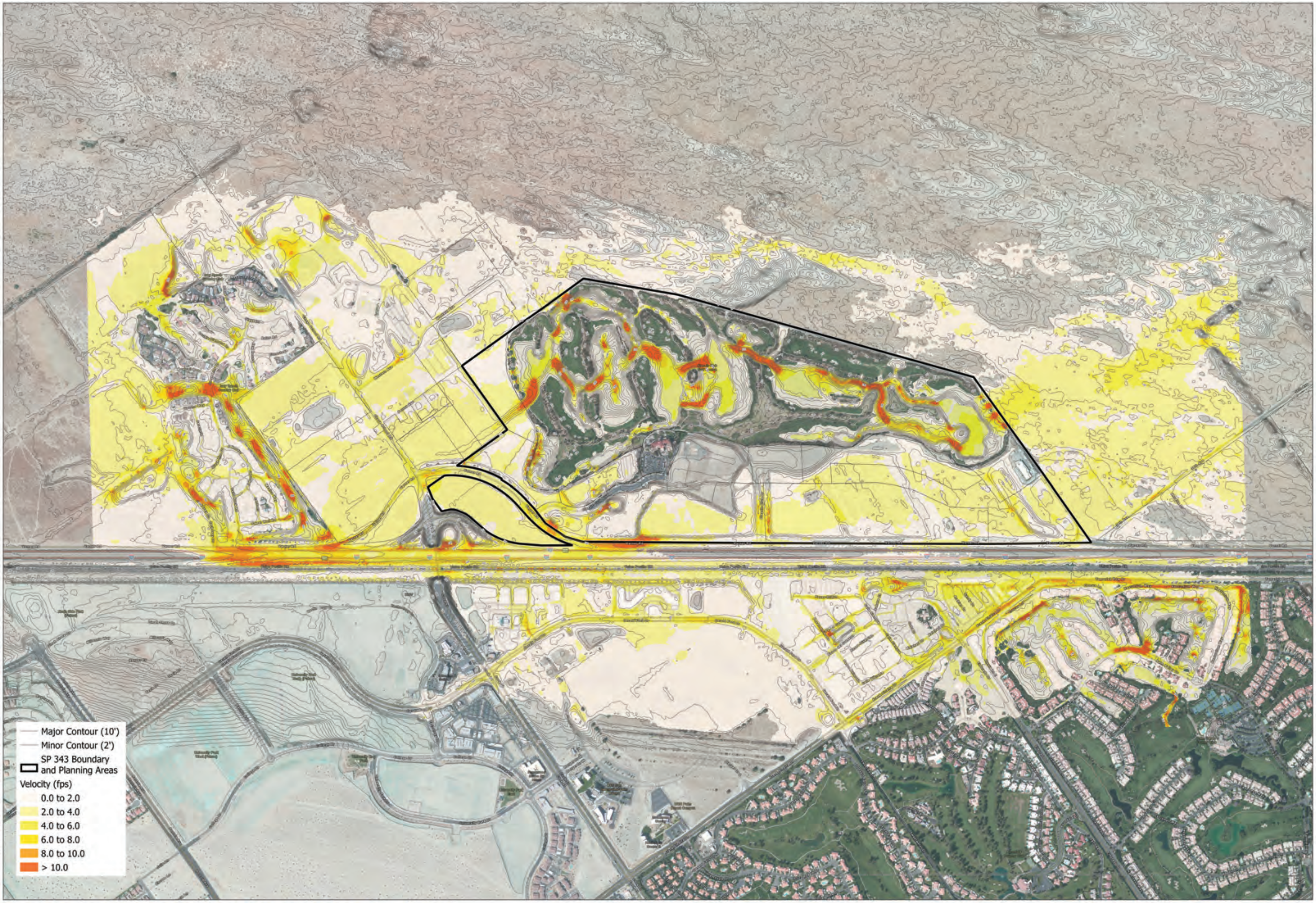
PACE

Figure 15

BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

EXISTING 100-YEAR FLOW DEPTH

Figure 16



BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

EXISTING 100-YEAR FLOW VELOCITY

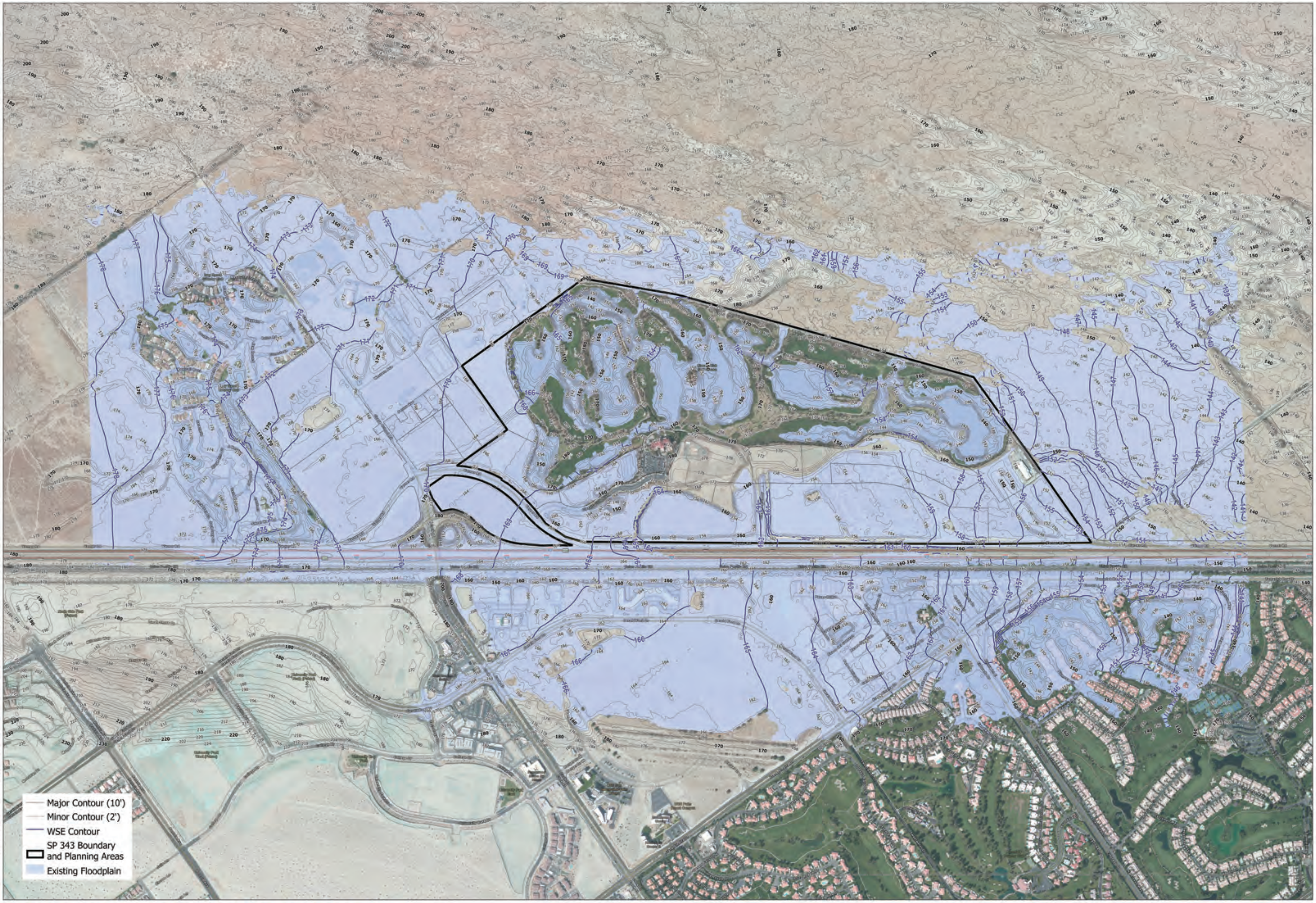
PACE

0 350 700 1,400 Feet

Date: 10/27/2020

Job Number: 8695

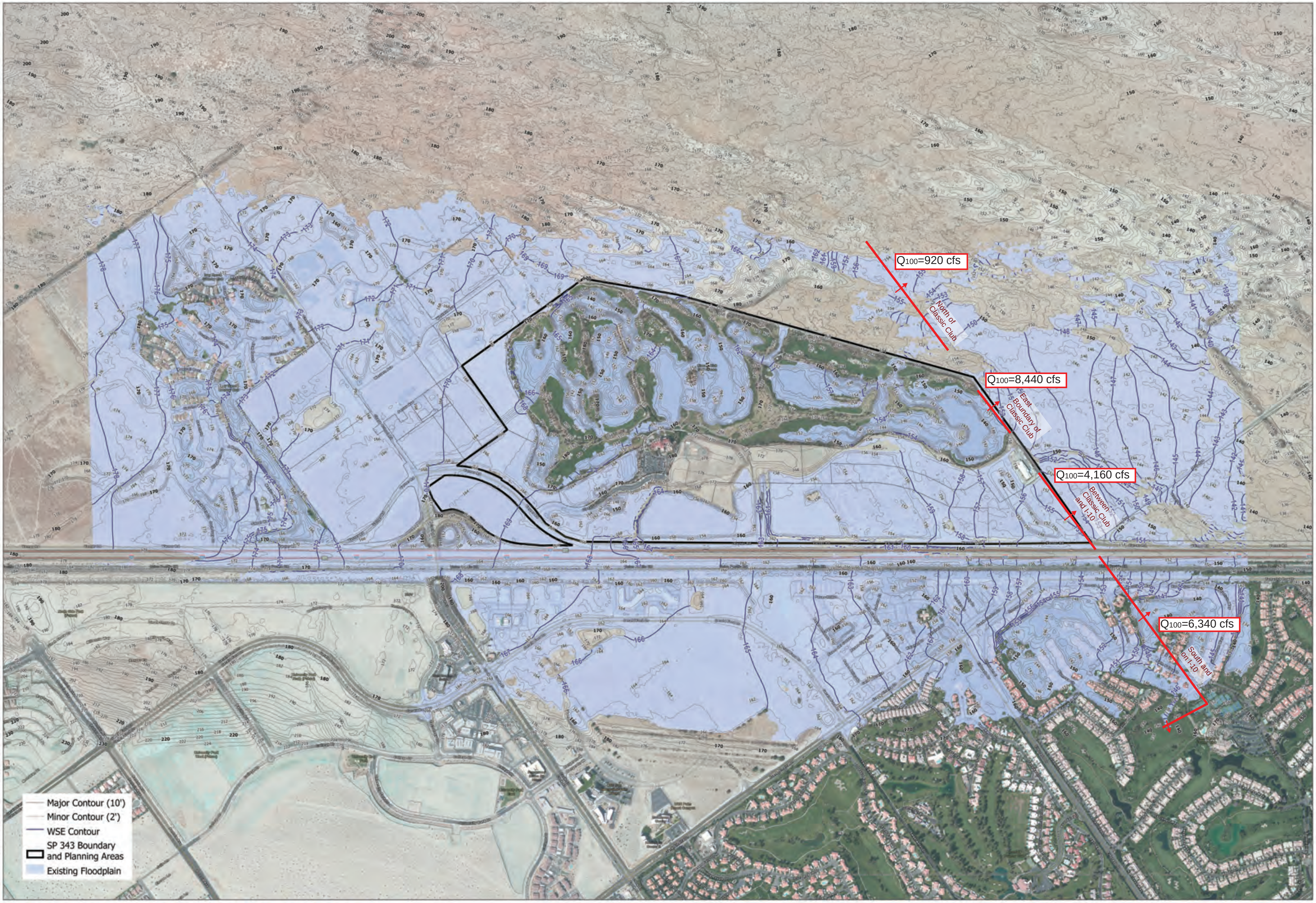
Figure 17



BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

EXISTING 100-YEAR WATER SURFACE ELEVATION

Figure 18



BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

EXISTING 100-YEAR FLOW RATES

PACE

Figure 19

BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW DEPTH (ARENA PHASE MODEL)

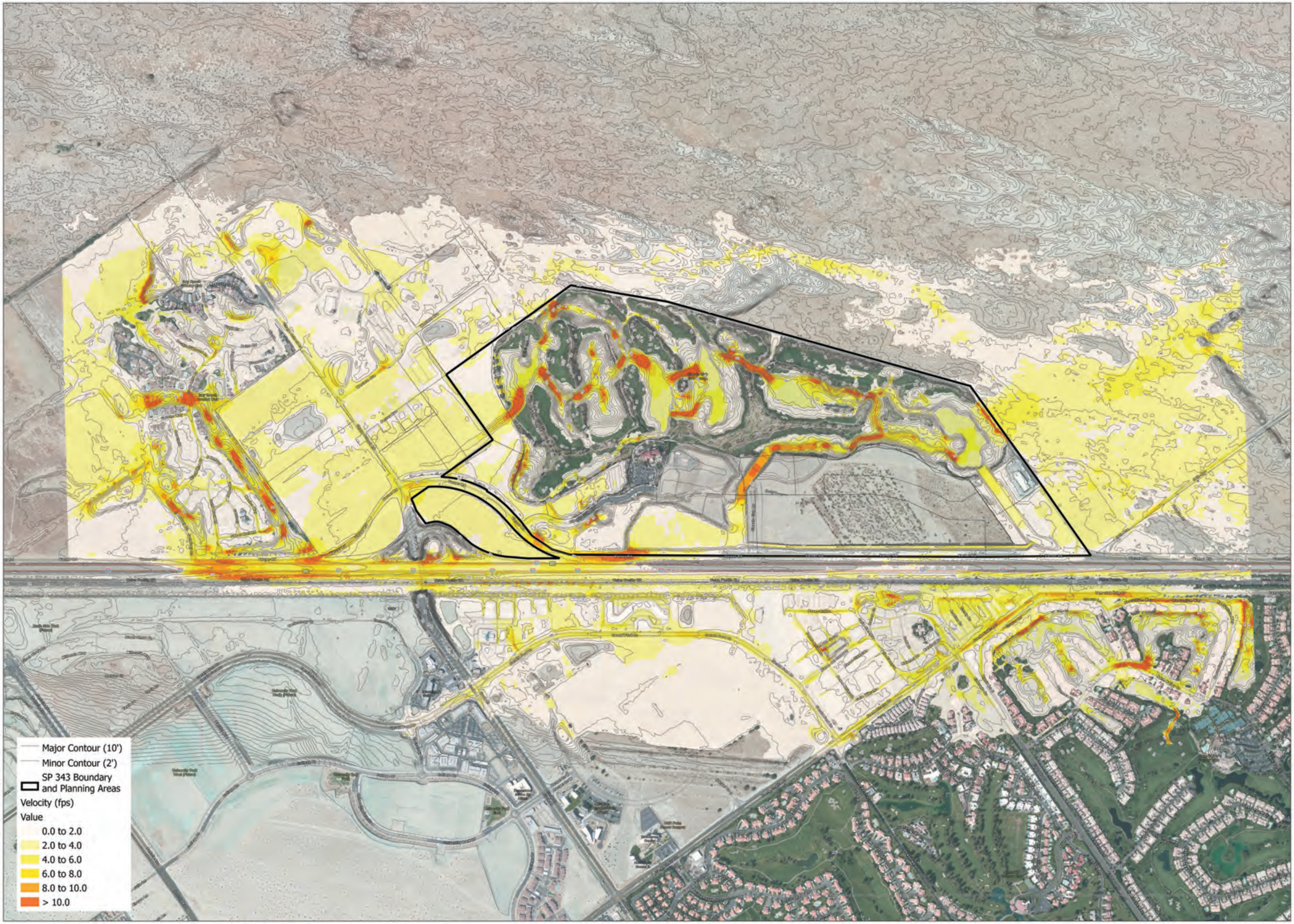
PACE

0 350 700 1,400 Feet

Date: 10/30/2020

Job Number: 8695

Figure 20

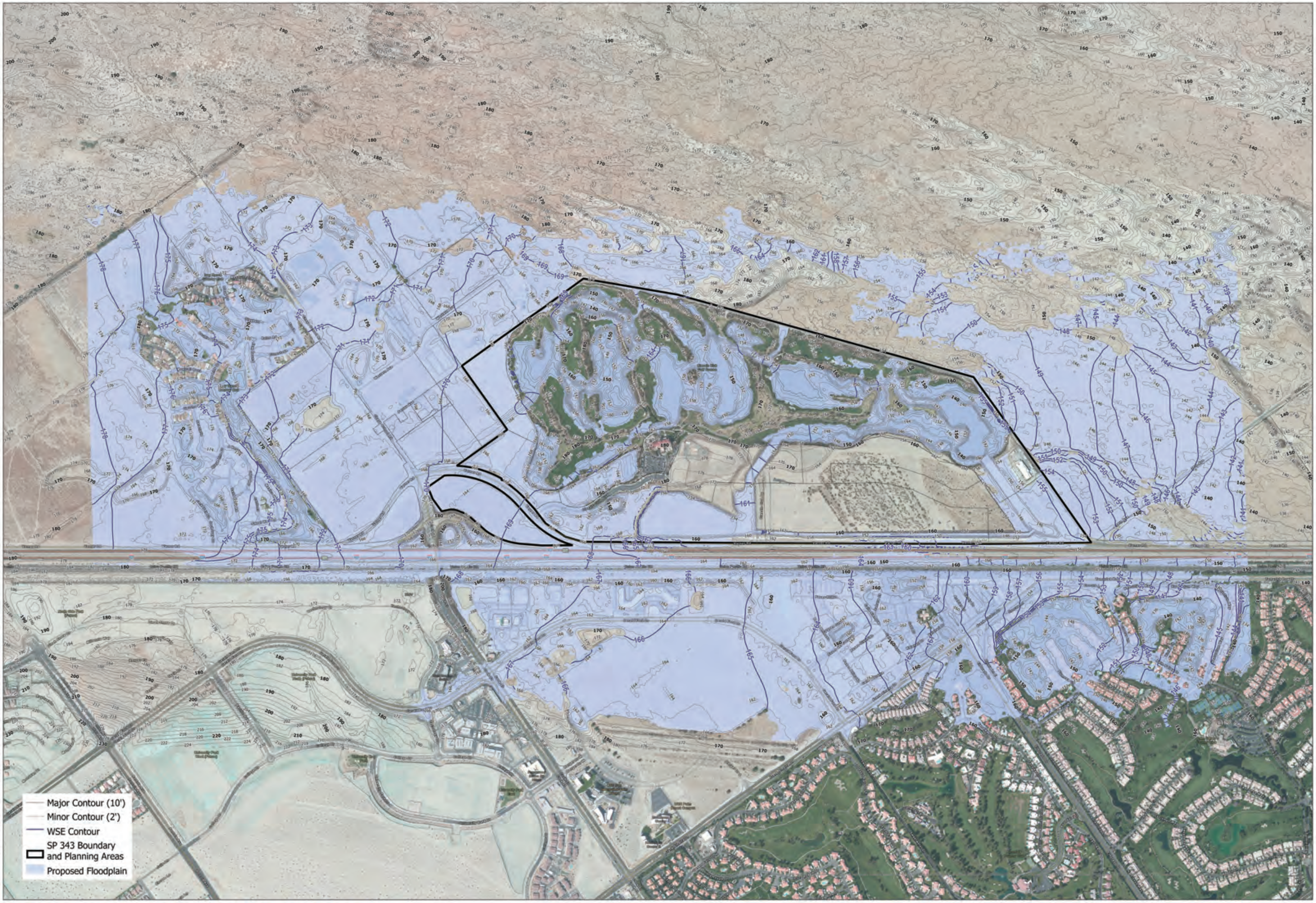


BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW VELOCITY (ARENA PHASE MODEL)

PACE

Figure 21



BERGER FOUNDATION Q_{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR WATER SURFACE ELEVATION (ARENA PHASE MODEL)

Figure 22

BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW DEPTH DIFFERENTIAL (ARENA PHASE MODEL)

PACE

0 350 700 1,400 Feet

Date: 10/30/2020

Job Number: 8695

Figure 23

BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW VELOCITY DIFFERENTIAL (ARENA PHASE MODEL)

PACE

Figure 24

BERGER FOUNDATION Q^{100} = 26,360 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR PEAK FLOW RATES (ARENA PHASE MODEL)

PACE

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW DEPTH (SP 343 MASTER PLAN)

PACE

Figure 26

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW VELOCITY (SP 343 MASTER PLAN)

PACE

Figure 27

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR WATER SURFACE ELEVATION (SP 343 MASTER PLAN)

Figure 28

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW DEPTH DIFFERENTIAL (SP 343 MASTER PLAN)

PACE

0 350 700 1,400 Feet

Date: 10/28/2020

Job Number: 8695

Figure 29

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR FLOW VELOCITY DIFFERENTIAL (SP 343 MASTER PLAN)

PACE

Figure 30

BERGER FOUNDATION Q^{100} = 11,600 CFS FLOODPLAIN ROUTING

PROPOSED 100-YEAR PEAK FLOW RATES (SP343 MASTER PLAN)

PACE

Figure 31

APPENDIX E:

Noise Study

Noise Study

for the

Addendum to the NorthStar Specific Plan

PREPARED FOR:

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March 2021

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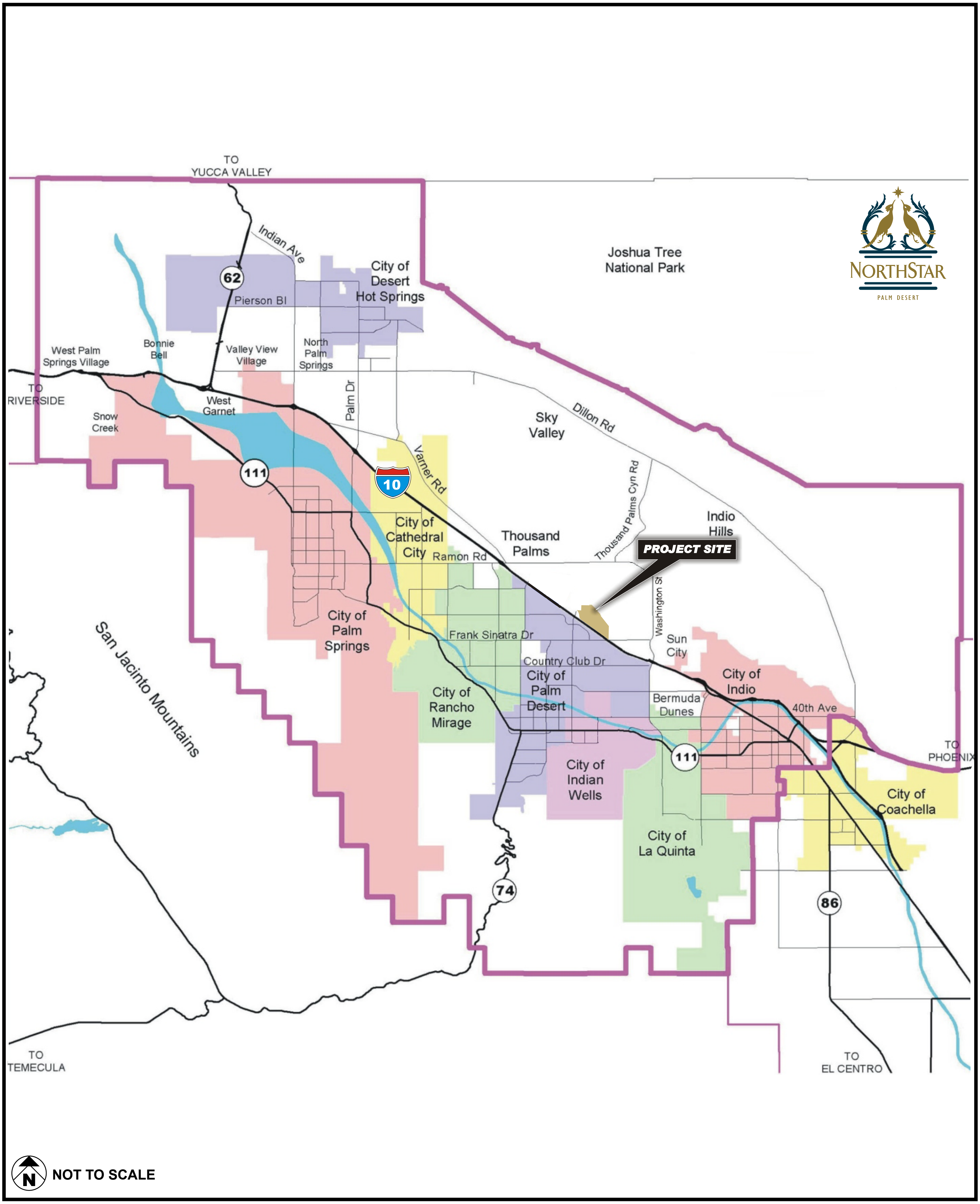
STUDY PURPOSE & OBJECTIVES

The purpose of this Noise Study is to address potential noise impacts that may occur with the Riverside County Arena (Project), to determine if there would be any new or substantially increased noise impacts beyond what was disclosed in the 2006 NorthStar Specific Plan EIR with the proposed Specific Plan amendment, including the addition in Planning Area 11. The analysis describes the existing environment in the Project area; estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the Project; and identifies the potential for significant impacts. An evaluation of the Project's contribution to potential cumulative noise impacts is also provided. The study summarizes the potential for the Project to conflict with applicable noise and vibration regulations, standards, and thresholds.

Project Description

The NorthStar Specific Plan Area is located in the Western Coachella Valley within the unincorporated portion of Riverside County as shown in **Figure 1: NorthStar Specific Plan Regional Location Map**. Specifically, the NorthStar Specific Plan Area is located north of Interstate (I-) 10 and east of the Cook Street Interchange. Access is provided via Varner Road, which is situated parallel to the southern boundary of the NorthStar Specific Plan Area as depicted in **Figure 2: NorthStar Specific Plan Vicinity Location Map**. Surrounding land uses include the Coachella Valley Preserve to both the east and northeast, Cook Street to the west and Varner Road to the south. I-10 is located immediately south of Varner Road. The City of Palm Desert, the Cal State University San Bernardino Desert Campus and additional commercial and industrial uses are situated across I-10, further south of the NorthStar Specific Plan Area.

The proposed amendment to the NorthStar Specific Plan (SP Amendment) would reduce Planning Area 8 and make minor adjustments of boundaries for Planning Area 4, 6, and 7 as defined in the adopted NorthStar Specific Plan to accommodate the addition of Planning Area 11, which would allow the development of the proposed Riverside County Arena, a new multi-purpose arena event center, hockey training facility with practice ice, public open space, surface parking, and retail skate shop on an approximately 41.4-acre site. Collectively, the SP Amendment and the proposed Arena would be referred to as the "proposed Project." The "Project site" refers to Planning Area 11 and the development of the proposed Arena that are within the NorthStar Specific Plan area and included in the proposed Specific Plan amendment.



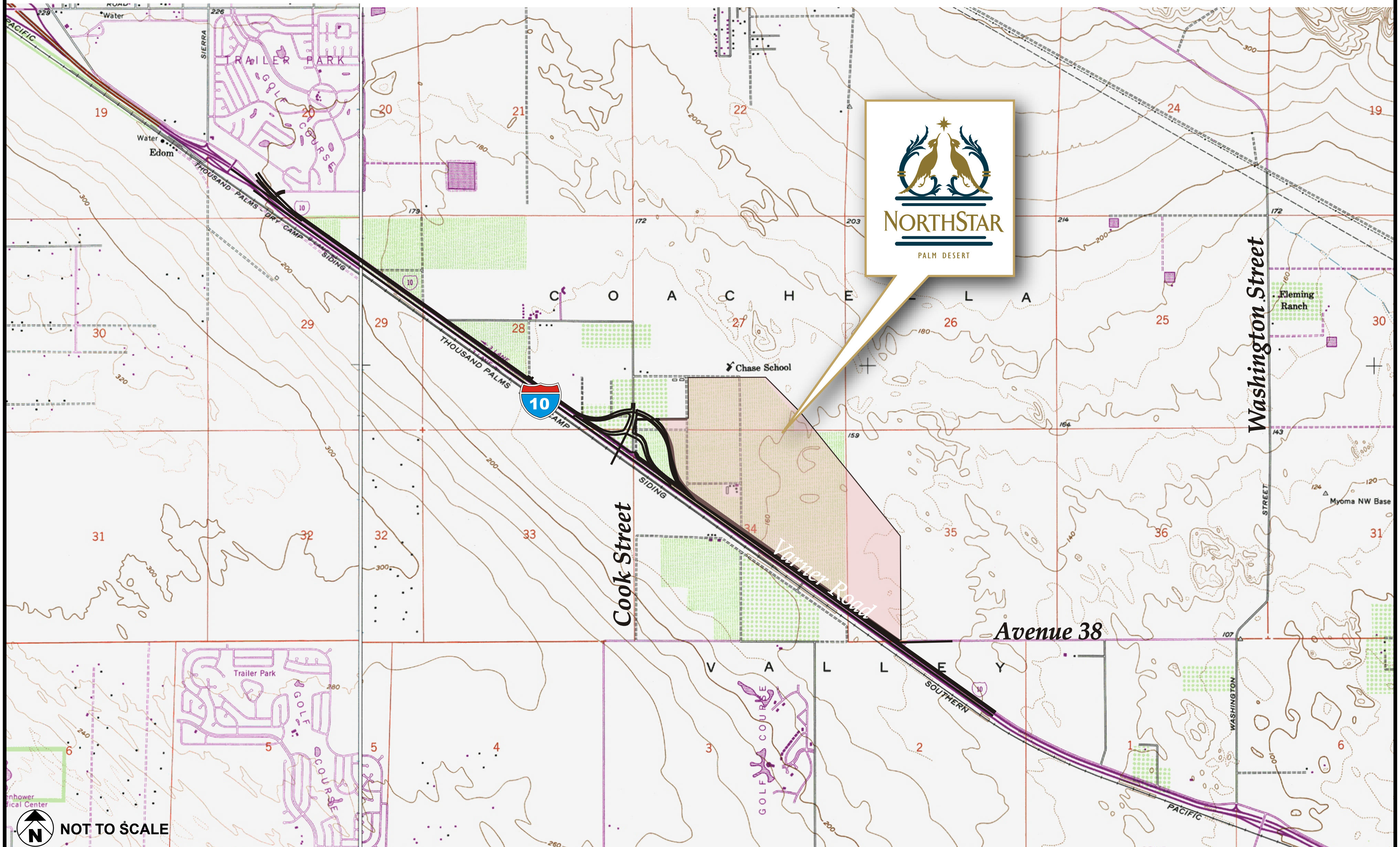
SOURCE: The Altum Group - 2020

FIGURE 1

Meridian Consultants

NorthStar Specific Plan Regional Location Map

296-001-20



SOURCE: The Altum Group - 2020

FIGURE 2

Meridian Consultants

NorthStar Specific Plan Vicinity Location Map

296-001-20

NOISE DESCRIPTORS

Fundamentals of Sound

Because the human ear does not respond uniformly to sounds at all frequencies, sound-pressure level alone is not a reliable indicator of loudness. For example, the human ear is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. In response to the sensitivity of the human ear to certain sound frequencies, the A-weighted noise level, referenced in units of dBA, was developed to better correspond with people's subjective judgment of sound levels. To support assessing a community reaction to noise, scales have been developed that average sound-pressure levels over time and quantify the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels. The equivalent sound level (Leq) is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.

Table 1: Noise Descriptors identifies various noise descriptors developed to measure sound levels over different periods of time.

A doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. In general, changes in a noise level of less than 3 dBA are not noticed by the human ear.[1] Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. An increase of greater than 5 dBA is readily noticeable, while the human ear perceives a 10 dBA increase in sound level to be a doubling of sound volume.

---

1 US Department of Transportation, Federal Highway Administration (USDOT FHWA), *Fundamentals and Abatement of Highway Traffic Noise* (Springfield, VA: Author, September 1980), 81.

Table 1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.
A-weighted decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Hertz (Hz)	The frequency of the pressure vibration, which is measured in cycles per second.
Kilo hertz (kHz)	One thousand cycles per second.
Equivalent sound level (Leq)	The sound level containing the same total energy as a time varying signal over a given time period. The Leq is the value that expresses the time averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
Community noise equivalent level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dBA for the evening, 7:00 PM to 10:00 PM, and add 10 dBA for the night, 10:00 PM to 7:00 AM. The 5- and 10-dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dBA of the peak-hour Leq.[a]
Nighttime (Lnight)	Lnight is the average noise exposure during the hourly periods from 10:00 PM to 7:00 AM.
Sound pressure level	The sound pressure is the force of sound on a surface area perpendicular to the direction of the sound. The sound pressure level is expressed in dB.
Ambient noise	The level of noise that is all encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient environment.

[a] *California Department of Transportation,* Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol, *(Sacramento, California: November 2009), pp. N51–N54.*

Noise sources can generally be categorized in two types: (1) point sources, such as stationary equipment; and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically hard sites, and at a rate of 7.5 dBA at acoustically soft sites.[2] A hard or reflective site consists of asphalt, concrete, or very hard-packed soil, which does not provide any excess ground-effect attenuation. An acoustically soft or absorptive site is characteristic of normal earth and most ground with vegetation. As an example, a 60-dBA noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Noise from the same point source at an acoustically soft site would be 52.5 dBA at 100 feet and 45 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively.[3] Noise levels generated by a variety of activities are shown in **Figure 3: Common Noise Levels**. Man-made or natural barriers can also attenuate sound levels, as illustrated in **Figure 4: Noise Attenuation by Barriers**.

Fundamentals of Vibration

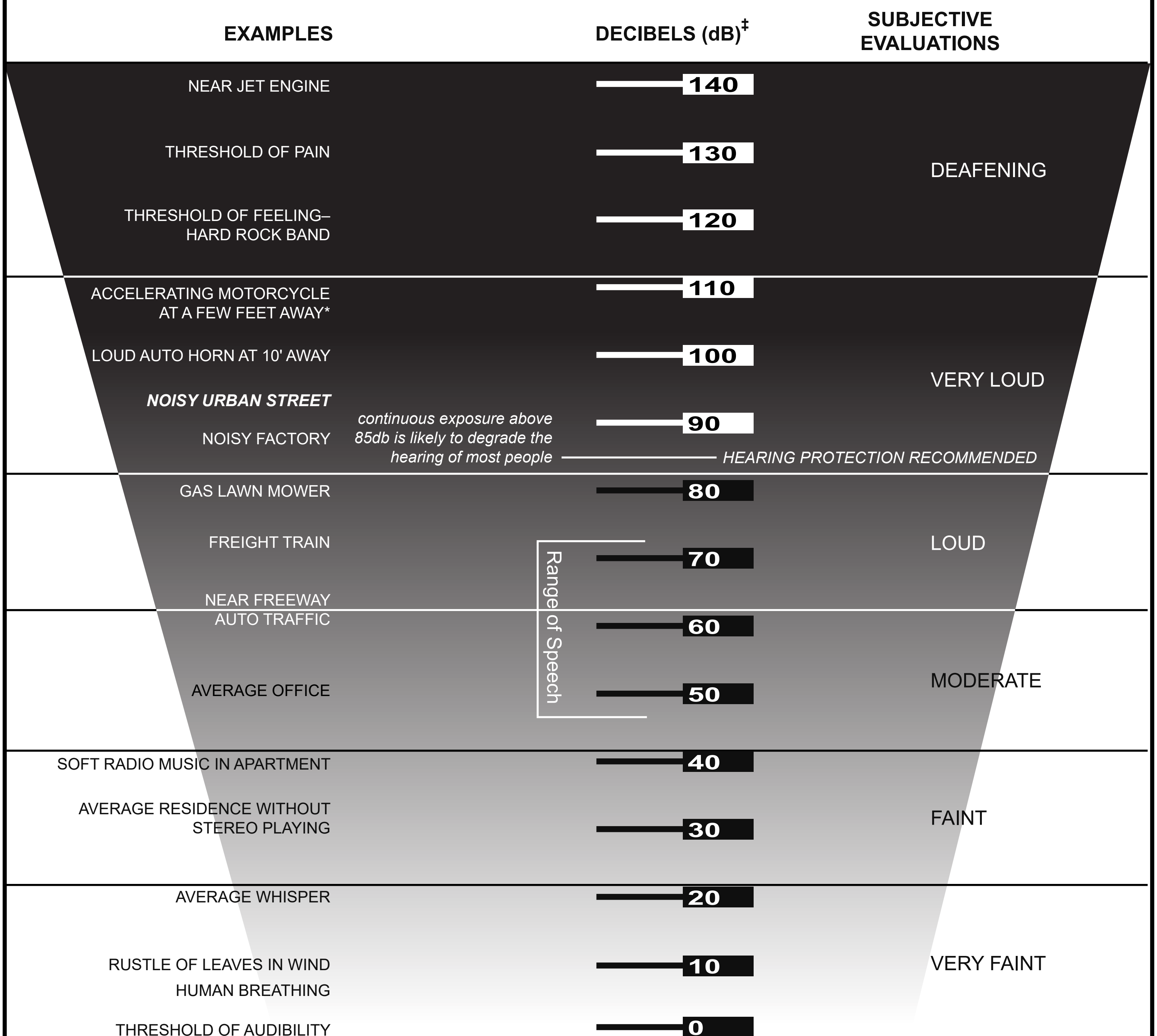
Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or root-mean-square (RMS) velocity is typically used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response to ground-borne vibration. The RMS vibration velocity level can be presented in inches per second (ips) or in VdB (a decibel unit referenced to 1 microinch per second). Commonly, ground-borne vibration generated by man-made activities (i.e., road traffic, construction) attenuates rapidly with distance from the source of the vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as the operation of mechanical equipment, the movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

---

2 USDOT FHWA, *Fundamentals and Abatement,* 97.

3 USDOT FHWA, *Fundamentals and Abatement,* 97.



** NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.*

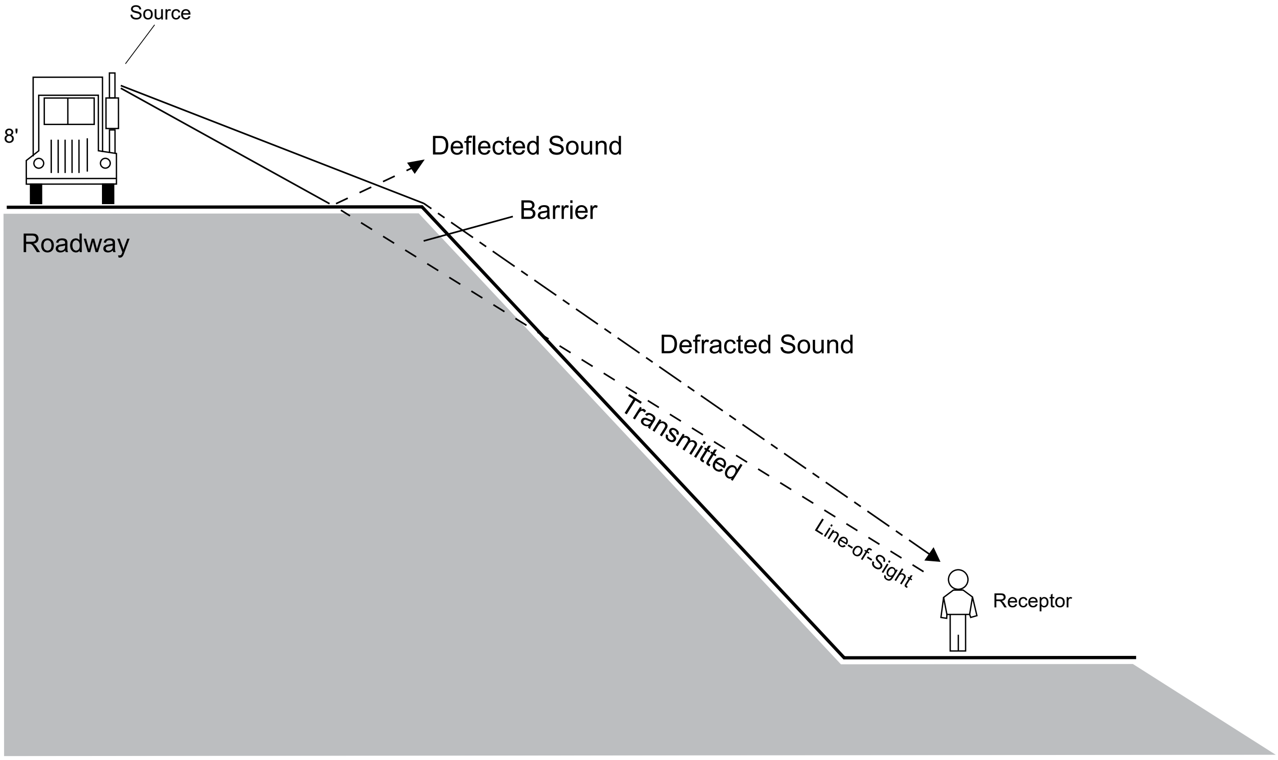
‡NOTE: dB are "average" values as measured on the A–scale of a sound–level meter.

SOURCE: Meridian Consultants, LLC - 2020

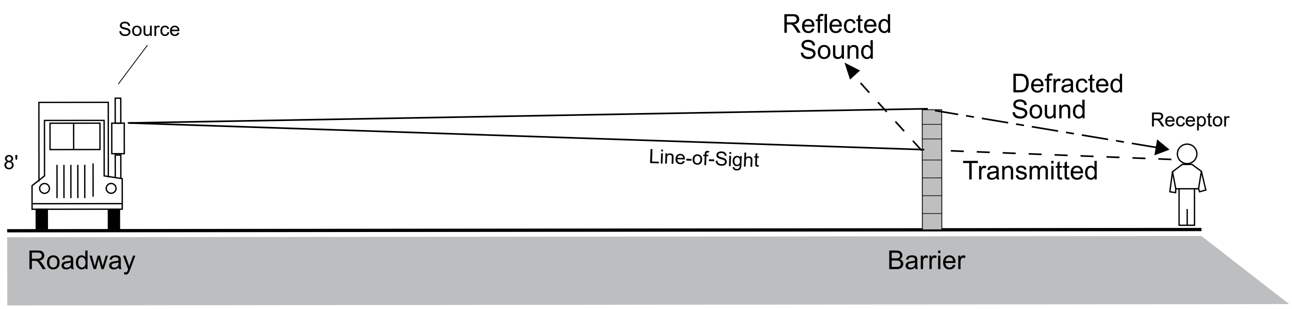
FIGURE 3

Common Noise Levels

296-001-20



"Barrier Effect" Resulting from Differences in Elevation.



"Barrier Effect" Resulting from Typical Soundwall.

SOURCE: Meridian Consultants, LLC - 2020

FIGURE 4

Meridian Consultants

Noise Attenuation by Barriers

296-001-20

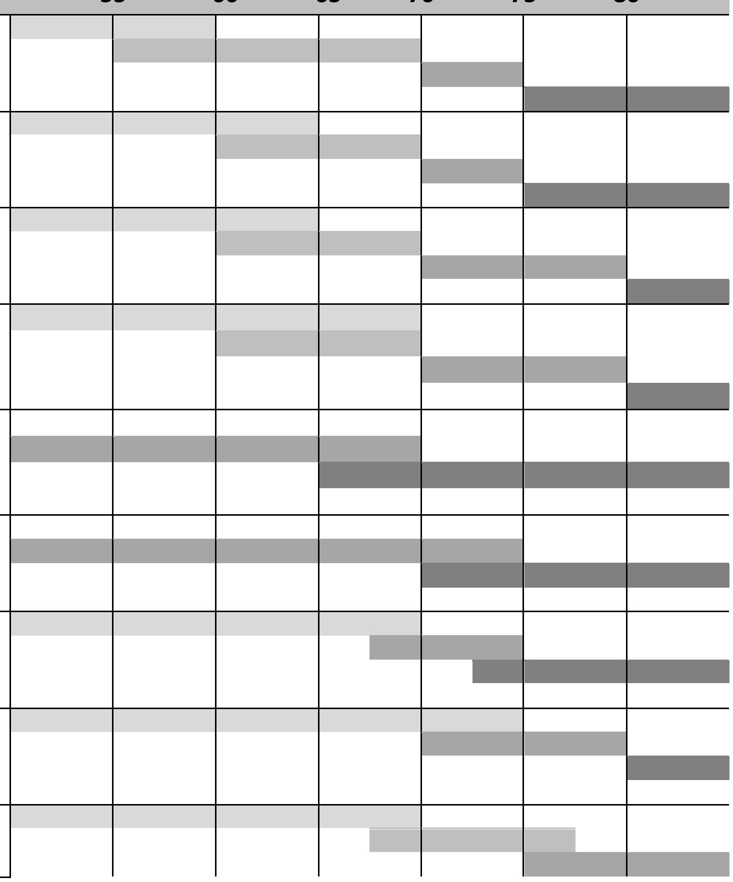
ENVIRONMENTAL SETTING

Guidelines for Noise-Compatible Land Uses

The Noise Element of the Riverside County General Plan is closely related to the Land Use Element because of the effects that noise has on sensitive land uses. Noise-producing land uses must be compatible with adjacent land uses in order for the Land Use Plan to be successful. Land uses that emit noise are measured in A-weighted decibels (dBA) or Community Noise Equivalent Level (CNEL). If existing land uses emit noise above a certain level, they are not compatible with one another, and therefore noise attenuation devices must be used to mitigate the noise to acceptable levels indoors and outdoors. In cases of new development, the placement of noise-sensitive land uses is integral to a successful community. **Table 2: Land Use Compatibility for Community Noise Exposure**, shows the noise acceptability levels for different land uses. In Riverside County, the noise standard for exterior usable space for any residential development is 65 dBA, and 45 dBA for interior habitable space.

Table 2
Land Use Compatibility for Community Noise Exposure

Land Use Categories	Community Noise Equivalent Level (CNEL)					
	55	60	65	70	75	80
Residential—Low-Density Single-Family, Duplex, Mobile Homes						
Residential—Multiple Family						
Transient Lodging - Motel, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						



Land Use Categories	Community Noise Equivalent Level (CNEL)					
	55	60	65	70	75	80
Office Buildings, Businesses, Commercial, and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will suffice. Outdoor environment will seem noisy.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insultation features included in the design. Outdoor areas must be shielded.

Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Source: County of Riverside General Plan, Noise Element, December 8, 2015.

County of Riverside Municipal Code

Chapter 9.52 of the Riverside County Municipal Code (RCMC) establishes county-wide standards regulating noise. However, Chapter 9.52 also states that, "this chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established." Section 9.52.020 exempts construction noise within one-quarter mile of an inhabited dwelling provided that construction does not occur between the hours of 6:00 PM and 6:00 AM during the months of June through September, and between the hours of 6:00 PM and 7:00 AM during the months of October through May.

EXISTING CONDITIONS

Baseline noise levels for the Coachella Valley are currently undergoing changes in response to the planned build-out of the area. Traffic noise will increase as new development occurs.

The Project Site experiences relatively low levels of noise with most noise deriving from vehicular sources on Varner Road and the freeway. Airport and railroad noise constitute an occasional short-term exposure but their integrated contribution over 24-hour CNEL exposure period is small.

Measures noise levels in similar undeveloped environments in rural areas typically record the following levels contained in **Table 3: Typical Noise Levels in Rural Areas**.

Table 3
Typical Noise Levels in Rural Areas

Time	Averages (dBA)	Maximum (dBA)
Daytime	45	65
Evening	40	60
Night	35	50
24-Hour CNEL	45	—

Existing Off-Site Roadway Noise Levels

The existing traffic noise on local roadways in the surrounding areas was calculated to quantify the evening (PM) peak hour noise levels using information provided in the project's Traffic Impact Study.[4] The traffic study analyzed 17 intersections. These intersections and connecting roadway segments were selected for the generation of existing off-site traffic noise.

Table 4: Existing Roadway Noise Levels provides the calculated PM peak hour noise for the analyzed local roadway segments based on existing traffic volumes. As shown, PM peak hour noise levels ranged from a low of 45.1 dBA along Classic County Club Boulevard east of Varner Road (Intersection 10) to a high of 75.2 dBA along Monterey Avenue south of I-10 EB Ramps (Intersection 2).

In terms City's land use noise compatibility categories based on roadway traffic only, most locations are classified as normally acceptable, with others classified as conditionally acceptable. Specifically, the noise exposure compatibility categories based on roadway traffic only are summarized as follows:

- Normally Acceptable: Locations where commercial uses are dominant along Varner Road, Interstate 10 EB Ramps, Gerald Ford Drive, Country Clun Drive, Berkey Driven, and Washington Street. Locations where residential uses are dominant along Jack Ivey Drive.
- Conditionally Acceptable: Locations where commercial uses are dominant along Monterey Avenue, Varner Road, Interstate 10 EB Ramps, Interstate WB Ramps, Cook Street, Gerald Ford Drive, Country Club Drive, and Washington Street. Locations where residential uses are dominant along Monterey Avenue, Varner Road, Cook Street, Frank Sinatra Drive, Country Club Drive, and Washington Street.
- Normally Unacceptable: Locations where commercial uses are dominant along Monterey Avenue. Locations where residential uses are dominant along Cook Street.
- Clearly Unacceptable: No existing roadway noise levels would be within clearly unacceptable levels.

4 The Mobility Group, Draft Riverside County Arena Transportation Analysis, December 2020.

Table 4
Existing Roadway Noise Levels

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADT)	Existing Roadway Noise Level (CNEL)
Monterey Avenue					
1	North of Varner Road	Residential	PM	8,168	67.5
	South of Varner Road	Commercial	PM	14,152	71.0
2	North of I-10 EB Ramps	Commercial	PM	20,104	72.6
	South of I-10 EB Ramps	Commercial	PM	28,184	75.2
Varner Road					
1	East of Monterey Avenue	Residential	PM	7,824	65.6
	West of Monterey Avenue	Commercial	PM	5,808	66.4
3	East of Jack Ivey Drive	Residential	PM	3,072	62.8
	West of Jack Ivey Drive	Open Space	PM	3,008	62.7
4	East of Cook Street	Open Space	PM	3,368	63.8
	West of Cook Street	Open Space	PM	3,088	62.9
10	North of Classic Country Club Boulevard	Open Space	PM	6,320	64.4
	South of Classic Country Club Boulevard	Freeway	PM	6,328	65.4
11	North of Avenue 38	Open Space	PM	5,976	65.0
	South of Avenue 38	Open Space	PM	5,592	63.3
12	East of Berkey Drive	Commercial	PM	8,960	66.0
	West of Berkey Drive	Commercial	PM	5,504	63.5
14	East of Washington Street	Commercial	PM	16,680	69.2
	West of Washington Street	Commercial	PM	8,216	65.6
17	East of I-10 WB Ramps	Commercial	PM	14,744	68.6
	West of I-10 WB Ramps	Commercial	PM	20,176	69.6
I-10 EB Ramps					
2	East of Monterey Avenue	Open Space	PM	6,520	68.8
	West of Monterey Avenue	Commercial	PM	4,968	67.6
Jack Ivey Drive					
3	North of Varner Road	Residential	PM	736	50.1
	South of Varner Road	Freeway	PM	N/A	N/A
Cook Street					
4	North of Varner Road	Open Space	PM	1,008	57.0
	South of Varner Road	Open Space	PM	3,992	63.5

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADT)	Existing Roadway Noise Level (CNEL)
5	North of I-10 WB Ramps	Open Space	PM	4,976	64.5
	South of I-10 WB Ramps	Freeway	PM	7,696	66.3
6	North of I-10 EB Ramps	Freeway	PM	12,784	68.5
	South of I-10 EB Ramps	Commercial	PM	23,856	72.3
7	North of Gerald Ford Drive	Commercial	PM	21,600	73.0
	South of Gerald Ford Drive	Commercial	PM	16,384	72.7
8	North of Frank Sinatra Drive	Commercial	PM	16,320	71.8
	South of Frank Sinatra Drive	Residential	PM	14,992	69.5
9	North of Country Club Drive	Residential	PM	16,792	70.5
	South of Country Club Drive	Residential	PM	17,952	70.3
I-10 WB Ramps					
5	East of Cook Street	Open Space	PM	4,072	66.7
	West of Cook Street	Open Space	PM	424	56.9
17	North of Varner Road	Commercial	PM	N/A	N/A
	South of Varner Road	Commercial	PM	9,480	70.7
I-10 EB Ramps					
6	East of Cook Street	Commercial	PM	6,728	68.9
	West of Cook Street	Commercial	PM	6,072	68.5
15	East of Washington Street	Commercial	PM	5,720	68.2
	West of Washington Street	Commercial	PM	8,824	70.1
Gerald Ford Drive					
7	East of Cook Street	Commercial	PM	6,648	66.6
	West of Cook Street	Commercial	PM	10,312	69.9
Frank Sinatra Drive					
8	East of Cook Street	Residential	PM	5,584	66.2
	West of Cook Street	Residential	PM	9,520	68.5
Country Club Drive					
9	East of Cook Street	Residential	PM	13,536	69.0
	West of Cook Street	Commercial	PM	14,536	69.3
16	East of Washington Street	Commercial	PM	10,880	67.8
	West of Washington Street	Commercial	PM	17,952	70.2

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADT)	Existing Roadway Noise Level (CNEL)
Classic Country Club Boulevard					
10	East of Varner Road	Open Space	PM	136	45.1
	West of Varner Road	Freeway	PM	N/A	N/A
Avenue 38					
11	East of Varner Road	Open Space	PM	400	51.8
	West of Varner Road	Freeway	PM	N/A	N/A
13	East of Washington Street	Residential	PM	N/A	N/A
	West of Washington Street	Open Space	PM	376	51.6
Berkey Drive					
12	North of Varner Road	Commercial	PM	1,600	58.4
	South of Varner Road	Freeway	PM	3,456	61.2
Washington Street					
13	North of Avenue 38	Residential	PM	4,256	65.2
	South of Avenue 38	Residential	PM	4,376	62.4
14	North of Varner Road	Commercial	PM	16,200	69.4
	South of Varner Road	Freeway	PM	25,192	71.4
15	North of I-10 EB Ramps	Freeway	PM	25,504	71.4
	South of I-10 EB Ramps	Commercial	PM	32,112	73.3
16	North of Country Club Drive	Commercial	PM	32,192	73.3
	South of Country Club Drive	Commercial	PM	24,640	71.7

Source: Refer to ***Attachment C*** *for roadway noise calculation worksheets.*
Note: N/A = No Data as roadway segment does not exist

Existing Vibration Conditions

The primary source of existing ground-borne vibration near the Project Site is vehicle traffic on nearby roadways, including Varner Road and I-10. These roadways are located directly south of Project site and can generate traffic-induced vibration levels. Varner Road is not recorded as a roadway which generates high volumes of traffic. However, I-10 generates approximately 118,200 average daily trips (ADT) near the Project site.[5] According to the FTA,[6] typical road traffic-induced vibration levels are unlikely to be perceptible by people. In part, FTA indicates that "it is unusual for vibration from traffic including buses and trucks to be perceptible, even in a location close to major roadways." Therefore, based on FTA

5 County of Riverside General Plan, Appendix I-1: Noise Element Data, December 8, 2015.
6 Federal Transit Administration, Transit Noise and Vibration Impact Assessment (2018).

published vibration data, the existing ground vibration environment in the Project vicinity would be below the perceptible levels. Trucks and buses typically generate vibration velocity levels of approximately 63 VdB (at 50-feet distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road.

METHODOLOGY

Construction Noise

On-Site Construction Activities

Construction activities typically generate noise from the operation of equipment required for construction of various facilities. Noise impacts from on-site construction and staging of construction trucks were evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise level at nearby noise-sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without project-related construction noise). The actual noise level would vary, depending upon the equipment type, model, the type of work activity being performed, and the condition of the equipment.

In order to calculate a daytime construction noise, hourly activity or utilization factors (i.e., the percentage of normal construction activity that would occur, or construction equipment that would be active, during each hour of the day) are estimated based on the temporal characteristics of other previous and current construction projects. The hourly activity factors express the percentage of time that construction activities would emit average noise levels. Typical noise levels for each type of construction equipment were obtained from the FHWA Roadway Construction Noise Model. Calculated noise levels associated with construction at noise-sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified below.

Construction Traffic Noise

The analysis of construction traffic noise impacts focuses on off-site areas by: (1) identifying major roadways that may be used for construction worker commute routes or truck haul routes; (2) generally identifying the nature and location of noise-sensitive receptors along those routes; and (3) evaluating the traffic characteristics along those routes, specifically as related to existing traffic volumes. Construction traffic volume and road parameter data would be input into the FHWA TNM model to calculate average noise levels for these trips. Construction trucks staging and hauling route noise impacts would be evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise levels and comparing against existing ambient noise levels (i.e., noise levels without construction noise) and exterior standards.

Construction Equipment Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration.

Impacts due to construction activities were evaluated by identifying vibration sources (i.e., construction equipment), measuring the distance between vibration sources and surrounding structure locations, and making a significance determination.

For quantitative construction vibration assessments related to building damage and human annoyance, vibration source levels for construction equipment is taken from the FTA *Transit Noise and Vibration Impact Assessment Manual.* Building damage would be assessed for each piece of equipment individually and assessed in terms of peak particle velocity. Ground-borne vibration related to human annoyance is assessed in terms of rms velocity levels.

The vibration source levels for various types of equipment are based on data provided by the FTA.

Operational Noise

Roadway Noise

Traffic noise levels were modeled using the FHWA TNM. The FHWA TNM calculates noise associated with a specific line source and the results characterize noise generated by motor vehicle travel along a specific roadway segment. The traffic noise impact analysis is based on the daytime and nighttime noise descriptor and incorporates traffic volumes, vehicle mix, posted speed limits, roadway geometry, and site conditions. Noise levels were evaluated with respect to the following traffic scenarios:

- Existing Conditions;
- Existing + Ambient + Proposed Arena Conditions, 2023; and
- Existing + Ambient + Proposed Arena Conditions + Cumulative Conditions, 2023

THRESHOLDS OF SIGNIFICANCE

Noise

For the purpose of comparing the Project to the findings in the certified NorthStar Specific Plan EIR, this analysis assumes similar thresholds of significance for noise compared to the certified NorthStar Specific

Plan EIR. CEQA guidelines identify significant impacts as those that cause standards to be exceeded when they are currently met. An impact is also considered significant if it “substantially” worsens an existing unacceptable noise environment.

The accuracy of sound level meters and computer models is no better than 1 dBA. This is also the human loudness difference discrimination under ideal laboratory conditions. Most people cannot distinguish less than 3 dBA noise difference. Therefore, for purposes of this analysis, an increase of 3 dBA or more in an area of noise incompatibility would be considered significant.

Because of the logarithmic nature of the noise scale, it requires a dramatic increase in traffic to create even a perceptible change in noise levels. A 1 dBA increase requires a 25 percent increase in traffic volume. A 3 dBA increase occurs when traffic volumes double. In those areas where traffic volumes are already high enough to create a noise concern, few projects would individually cause traffic volumes to double. Off-site traffic noise impacts tend to be cumulative rather than an individual impact.

Therefore, significant noise thresholds for the Project are as follows:

- On-site usable residential space exposed to levels in excess of 65 dBA exterior/45 dBA interior;
- Off-site noise levels increased by more than 3 dBA due to project-related traffic near sensitive receptors, or;
- Construction activities performed near occupied residences outside the allowable times specified in the County Code.

For informational purposes, the County’s current noise thresholds are included below which are considered more stringent than the thresholds used in the certified Specific Plan EIR.

Typically a project would result in a significant noise impact if the existing ambient noise levels at the nearby noise-sensitive receivers near the project site:

- Are less than 60 dBA Leq and the project creates a readily perceptible 5 dBA Leq or greater project-related noise level increase;
- Range from 60 to 65 dBA Leq and the project creates a barely perceptible 3 dBA Leq or greater project-related noise level increase; or
- Already exceed 65 dBA Leq and the project creates a community noise level impact of greater than 1.5 dBA Leq.

As discussed below, there are no sensitive receptors within 500 feet of the Project site. The nearest sensitive receptors to the Project site are residential uses approximately 615 feet to the south across

Interstate 10, along Paseo Bravo. Moreover, the proposed residential uses within the Specific Plan Area would be designed to include structural noise attenuation features to meet County standards.

Ground-Borne Vibration

The County has not adopted a significance threshold to assess vibration impacts during construction. Thus, the Caltrans *Transportation and Construction Vibration Guidance Manual*[7] is used as a screening tool to assess the potential for adverse vibration effects related to structural damage.

- **Potential Building Damage**. Project construction activities cause ground-borne vibration levels to exceed 0.5 ips PPV at the nearest off-site residential buildings.

NOISE ANALYSIS

NorthStar Specific Plan EIR Noise Findings

As discussed previously, the proposed Project is included as part of the SP Amendment. The NorthStar Specific Plan Environmental Impact Report (certified Specific Plan EIR) was approved by the Riverside County Board of Supervisors on April 4, 2006. The noise chapter of the certified Specific Plan EIR analyzed impacts related to noise associated with construction and operation of the developments proposed under the Specific Plan. The noise chapter found that construction under the Specific Plan would adhere to Ordinance 457.90, Section 1G of the Riverside County Building and Safety Department. Specifically, no construction activities would be undertaken between the hours of 6:00 PM and 6:00 AM during the months of June through September and between the hours of 6:00 PM and 7:00 AM during the months of October through May when a construction site is within one-quarter mile of an occupied residence(s). Moreover, the certified Specific Plan EIR included mitigation measures to reduce construction noise from construction. As such, construction noise impacts were found to be less than significant with mitigation. Mobile sources on nearby roadways were the primary concerns for long-term operational noise impacts associated with the Specific Plan. The certified Specific Plan EIR studied roadway noise for 24 roadway segments to determine if the Specific Plan would result in a 3 dBA increase in sound (e.g., doubling the volume of traffic on a roadway). The certified Specific Plan EIR found that while several roadways would experience a 3 dBA noise increase, these increases would either occur in areas absent of sensitive receptors or would be masked to imperceptible levels due to freeway background noise. Moreover, the certified Specific Plan EIR determined that noise exposure at outdoor spaces from combined maximum freeway noise would be 65 dBA. As such, the maximum plausible noise exposure for usable recreational

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7 Caltrans, *Transportation and Construction Vibration Guidance Manual* (September 2013), https://cityofdavis.org/home/showdocument?id=4521, Accessed December 2020,

space would meet, but not exceed Riverside County Standards and impacts were found to be less than significant.

The certified Specific Plan EIR analyzed on-site noise impacts and determined that a common area of noise conflict is often found at the interface between commercial and residential uses, for example when delivery docks and truck alleys behind stores are located near residential or other sensitive uses. These potential impacts can be mitigated by shielding loading docks on the commercial establishment. Under the certified Specific Plan EIR, the retail and industrial uses associated with Planning Areas 7 and 8 would not backup to noise-sensitive uses in Planning Areas 2, 3, 4, 5, and 6B which border Planning Areas 7 and 8 to the north. Moreover, per County standards the certified Specific Plan EIR determined that the southernmost tier of residential uses would require interior noise protection. Specifically, a maximum exterior noise exposure for residential uses of 65 CNEL requires 20 dBA of structural attenuation to meet County standards. The noise reduction potential for standard wood-frame construction with single-paned, closed windows is 20 dBA. With upgraded dual pane windows, noise reduction of 30 dBA can be achieved. However, tightly closed windows require a supplemental source of ventilation, i.e. air conditioning and a supplemental fresh air intake duct. To make sure that proposed development will be compatible with neighboring uses, the County may require a separate noise study and mitigation measures in the plot plan review process for individual projects. As such, on-site noise impacts were found to be less than significant with mitigation.

Proposed Project Findings

Construction Noise

On-Site Construction Noise

Construction of the Project would be broken into phases including grading, building construction, paving, and architectural coating. As the Project site is currently mass graded with no existing land uses, no demolition is required. During grading, an excess of approximately 30,000 cubic yards of dirt would be stockpiled or utilized for foundation work. The building construction phase would include concrete installation, steel erection, and exterior and interior buildout. The paving phase would include the construction of the surface parking lot. The architectural coating and finishing phase would include the application of architectural coating to building materials and site hardscape and landscaping.

Construction activities that would occur during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Project site. Each phase involves the use of different types of construction equipment and, therefore, has its own distinct noise characteristics. The Project would be constructed using typical construction techniques; no blasting, impact pile driving, or jackhammers would be required.

Typical maximum noise levels and duty cycles of representative types of equipment that would potentially be used during construction for this Project are presented in **Table 5: Typical Maximum Noise Levels for Project Construction Equipment**. Construction equipment noise would not be constant because of the variations of power, cycles, and equipment locations. For maximum noise events, this analysis considers equipment operating at the edge of the property line of the Project site.

The potential noise impact generated during construction depends on the phase of construction and the percentage of time the equipment operates over the workday. However, construction noise estimates used for the analysis are representative of worst-case conditions because it is unlikely that all the equipment contained on site would operate simultaneously.

Table 5
Typical Maximum Noise Levels for Project Construction Equipment

Equipment Description	Typical Duty Cycle (%)	Spec Lmax (dBA)	Actual Lmax (dBA)
Air Compressor	40	80.0	77.7
Auger Drill Rig	20	85.0	84.4
Backhoe	40	80.0	77.6
Crane	16	85.0	80.6
Dozer	40	85.0	81.7
Flatbed Truck	40	84.0	74.3
Forklift	40	85.0	N/A
Generator	50	82.0	80.6
Paver	50	85.0	77.2
Roller	20	85.0	80.0
Scraper	40	85.0	83.6

Source: FHWA Roadway Construction Noise Model (RCNM) version 1.1
Note: N/A = not available.

As previously noted, the Project would be constructed using typical construction techniques; no blasting, impact pile driving, or jackhammers would be required. As would be the case for construction of most land use development projects, construction of the Project would require the use of heavy-duty equipment with the potential to generate audible noise above the ambient background noise level.

There are no sensitive receptors within 500 feet of the Project site. The nearest sensitive receptors to the Project site are residential uses approximately 615 feet to the south across Interstate 10, along Paseo Bravo. The noise levels from construction activity at a reference distance of 50 feet and at the sensitive receptors are shown in **Table 6: Construction Maximum Noise Estimates**. As shown, construction noise levels would result in a maximum increase of 27.7 dBA above the exterior residential standard of 65 dBA at a reference distance of 50 feet. However, construction noise would result in a maximum increase of 5.9 dBA above the exterior residential standard of 65 dBA at the nearest residential uses located approximately 615 feet from the Project Site.

Table 6
Construction Maximum Noise Estimates

Noise Receptor (feet)	Max Leq	Exterior Residential Noise Standard (dBA)	Maximum Noise Increase over Noise Standard without Regulatory Compliance Measures (dBA)
Reference Distance (50 feet)	92.7	65	+27.7
Nearest Sensitive Receptors (615 feet)	70.9	65	+5.9

*Note: Refer to **Attachment A** for construction noise worksheets.*

The County's General Plan Noise Element identifies policies related to temporary construction which may contribute to increasing background noise. The following Noise Element policies apply to temporary noise construction within the County:[8]

N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices.

N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

8 County of Riverside General Plan, Noise Element, December 8, 2015.

a. Temporary noise attenuation fences;
b. Preferential location of equipment; and
c. Use of current noise suppression technology and equipment.

N 13.4 Require that all construction equipment utilizes noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

Consistent with the above policies, the Project would implement common construction best management practices such as the use of optimal muffler systems for all equipment would reduce construction noise levels by approximately 10 dB or more. Additionally, limiting the number of noise-generating heavy-duty off-road construction equipment (e.g., backhoes, dozers, excavators, loaders, rollers, etc.) simultaneously used on the Project site to no more than one or two pieces of heavy-duty off-road equipment would further reduce construction noise levels by approximately 14 dBA. Additionally, limiting the number of noise-generating heavy-duty construction equipment to two (2) pieces operating simultaneously would reduce construction noise levels by approximately 5 dB. With implementation of these common practices, construction noise levels would be reduced by a minimum of 29 dB. Moreover, the Project would comply with Section 9.52.020 of the RCMC which exempts construction noise within one-quarter mile of an inhabited dwelling provided that construction does not occur between the hours of 6:00 PM and 6:00 AM during the months of June through September, and between the hours of 6:00 PM and 7:00 AM during the months of October through May.

Off-Site Construction Activities

Each phase of construction would result in varying levels of intensity and a number of construction personnel. The construction workforce would consist of approximately 43 worker trips per day and 3,750 total hauling trips during grading; 628 worker trips per day and 245 vendor trips per day during concrete structure construction; 628 worker trips per day and 245 vendor trips per day during steel erection; 628 worker trips per day and 245 vendor trips per day during interior/exterior building construction; 23 worker trips per day during paving; and 126 worker trips per day during architectural coating.

A haul route has not been identified for the proposed soil export during the grading phase of the Project. However, it is assumed that haul truck traffic would take the most direct route to the freeway. The most direct route to the Project site includes traveling northwest along Varner Road until Cook Street, then trucks will travel south along Cook Street to access the freeway ramps to Interstate 10. As shown in **Table 4**, existing roadway noise levels along Varner Road east of Cook street ranges from 63.8 dBA and 65.4 dBA (Intersections 4 and 10), and existing roadway noise levels along Cook Street north of the Interstate 10 ramps ranges from 63.5 to 68.5 dBA (Intersections 4, 5, and 6). Additionally, the existing roadway noise levels along the corresponding Interstate 10 ramps ranges from 56.9 dBA and 68.9 dBA (Intersections and 6).

Along Varner Road, Project truck trips which includes medium- and heavy-duty trucks would generate maximum noise levels of approximately 60.8 and 58.7 dB, respectively. Compared to the existing noise levels of 63.8 to 65.4 dBA along Varner Road, the noise level increases from truck trips would be below the significance threshold of 3 dBA. Along Cook Street, Project truck trips which includes medium- and heavy-duty trucks would generate maximum noise levels of approximately 60.1 and 58.1 dB, respectively. Compared to the existing noise levels of 63.5 to 68.5 dBA along Cook Street, the noise level increases from truck trips would be below the significance threshold of 3 dBA. Along the Interstate 10 ramps, Project truck trips which includes medium- and heavy-duty trucks would generate maximum noise levels of approximately 61.8 and 58.8 dBA, respectively. Compared to the existing noise levels of 56.9 to 68.9 dBA along the Interstate 10 ramps, the noise level increases from truck trips would exceed the significance threshold of 3 dBA. However, there are no sensitive receptors located along the haul route. As such, on-road construction roadway noise would not result in a significant noise level increase at sensitive receptors.

Construction Vibration

Table 7: Construction Vibration Levels Estimates—Building Damage presents construction vibration impacts associated with on-site construction in terms of building damage. It is important to note pile driving would not be required during construction. As shown in **Table 7**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold for vibratory rollers, large bulldozers, caisson drilling, loaded trucks, jackhammers, and small bulldozers at a reference distance of 50 feet or at the nearest sensitive receptors.

Table 7
Construction Vibration Level Estimates—Building Damage

Receptor (feet)	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment						Significance Threshold (PPV ips)
	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jackhammer	Small bulldozer	
FTA Reference Vibration Levels at 25 feet							
	0.210	*0.089*	*0.089*	*0.076*	*0.035*	*0.003*	
Reference Distance (50 feet)	0.074	0.031	0.031	0.027	0.012	0.001	0.5
Nearest Sensitive Receptors (615 feet)	0.002	0.001	0.001	0.001	0.000	0.000	0.5

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment
Note: Refer to ***Attachment B*** *for construction vibration worksheets.*

Operation

Roadway Noise

Table 8: Existing Plus Project Roadway Noise Levels illustrates the change in PM peak hour noise levels from existing traffic volumes and from traffic generated by the Project. The difference in traffic noise between existing conditions and existing plus Project conditions represents the increase in noise attributable to Project-related traffic. As shown in **Table 8**, the maximum noise level increases during the PM peak hour along analyzed roadways would be 3.2 dBA along Varner Road east of Cook Street (Intersection 4). Thus, the Project would result in a permanent increase in noise levels and vehicular related noise impacts under the Existing Plus Project scenario. It should be noted that the Project would not result in a 3 dBA increase along any other roadway segment. Moreover, Intersection 4 is not located in an area with sensitive receptors present. As such, roadway noise under this scenario would not result in a significant noise level increase at sensitive receptors.

Table 8
Existing Plus Project Roadway Noise Levels

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs)		Roadway Noise Levels (dBA)		Difference (dBA)	Threshold Exceeded?
				Existing	EAP	Existing	EAP		
Monterey Avenue									
1	North of Varner Road	Residential	PM	8,168	8,664	67.5	67.8	+0.3	No
	South of Varner Road	Commercial	PM	14,152	15,168	71.0	71.3	+0.3	No
2	North of I-10 EB Ramps	Commercial	PM	20,104	21,488	72.6	72.8	+0.2	No
	South of I-10 EB Ramps	Commercial	PM	28,184	30,064	75.2	75.5	+0.3	No
Varner Road									
1	East of Monterey Avenue	Residential	PM	7,824	8,648	65.6	66.0	+0.4	No
	West of Monterey Avenue	Commercial	PM	5,808	6,368	66.4	66.8	+0.4	No
3	East of Jack Ivey Drive	Residential	PM	3,072	3,608	62.8	63.5	+0.7	No
	West of Jack Ivey Drive	Open Space	PM	3,008	3,536	62.7	63.4	+0.7	No
4	East of Cook Street	Open Space	PM	3,368	7,064	63.8	67.0	+3.2	Yes
	West of Cook Street	Open Space	PM	3,088	3,624	62.9	63.6	+0.7	No
10	North of Classic Country Club Boulevard	Open Space	PM	6,320	10,208	64.4	66.5	+2.1	No
	South of Classic Country Club Boulevard	Freeway	PM	6,328	10,216	65.4	67.5	+2.1	No
11	North of Avenue 38	Open Space	PM	5,976	7,840	65.0	66.2	+1.2	No
	South of Avenue 38	Open Space	PM	5,592	7,432	63.3	64.5	+1.2	No
12	East of Berkey Drive	Commercial	PM	8,960	11,000	66.0	66.9	+0.9	No
	West of Berkey Drive	Commercial	PM	5,504	7,328	63.5	64.7	+1.2	No
14	East of Washington Street	Commercial	PM	16,680	18,712	69.2	69.7	+0.5	No
	West of Washington Street	Commercial	PM	8,216	10,208	65.6	66.6	+1.0	No
17	East of I-10 WB Ramps	Commercial	PM	14,744	15,856	68.6	68.9	+0.3	No

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs)		Roadway Noise Levels (dBA)		Difference (dBA)	Threshold Exceeded?
				Existing	EAP	Existing	EAP		
	West of I-10 WB Ramps	Commercial	PM	20,176	22,424	69.6	70.1	+0.5	No
I-10 EB Ramps									
2	East of Monterey Avenue	Open Space	PM	6,520	6,920	68.8	69.0	+0.2	No
	West of Monterey Avenue	Commercial	PM	4,968	5,272	67.6	67.9	+0.3	No
Jack Ivey Drive									
3	North of Varner Road	Residential	PM	736	776	50.1	50.3	+0.2	No
	South of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
Cook Street									
4	North of Varner Road	Open Space	PM	1,008	1,064	57.0	57.2	+0.2	No
	South of Varner Road	Open Space	PM	3,992	7,384	63.5	66.2	+2.7	No
5	North of I-10 WB Ramps	Open Space	PM	4,976	8,440	64.5	66.8	+2.3	No
	South of I-10 WB Ramps	Freeway	PM	7,696	11,096	66.3	67.9	+1.6	No
6	North of I-10 EB Ramps	Freeway	PM	12,784	16,504	68.5	69.6	+1.1	No
	South of I-10 EB Ramps	Commercial	PM	23,856	26,168	72.3	72.7	+0.4	No
7	North of Gerald Ford Drive	Commercial	PM	21,600	23,768	73.0	73.4	+0.4	No
	South of Gerald Ford Drive	Commercial	PM	16,384	18,032	72.7	73.1	+0.4	No
8	North of Frank Sinatra Drive	Commercial	PM	16,320	17,960	71.8	72.2	+0.4	No
	South of Frank Sinatra Drive	Residential	PM	14,992	16,416	69.5	69.9	+0.4	No
9	North of Country Club Drive	Residential	PM	16,792	18,320	70.5	70.9	+0.4	No
	South of Country Club Drive	Residential	PM	17,952	19,400	70.3	70.6	+0.3	No
I-10 WB Ramps									
5	East of Cook Street	Open Space	PM	4,072	4,408	66.7	67.1	+0.4	No

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs) Existing	Average Daily Trips (ADTs) EAP	Roadway Noise Levels (dBA) Existing	Roadway Noise Levels (dBA) EAP	Difference (dBA)	Threshold Exceeded?
	West of Cook Street	Open Space	PM	424	584	56.9	58.3	+1.4	No
17	North of Varner Road	Commercial	PM	N/A	N/A	N/A	N/A	N/A	N/A
	South of Varner Road	Commercial	PM	9,480	10,872	70.7	71.3	+0.6	No
I-10 EB Ramps									
6	East of Cook Street	Commercial	PM	6,728	7,144	68.9	69.2	+0.3	No
	West of Cook Street	Commercial	PM	6,072	8,520	68.5	70.0	+1.5	No
15	East of Washington Street	Commercial	PM	5,720	6,112	68.2	68.5	+0.3	No
	West of Washington Street	Commercial	PM	8,824	9,360	70.1	70.4	+0.3	No
Gerald Ford Drive									
7	East of Cook Street	Commercial	PM	6,648	7,056	66.6	66.9	+0.3	No
	West of Cook Street	Commercial	PM	10,312	11,144	69.9	70.2	+0.3	No
Frank Sinatra Drive									
8	East of Cook Street	Residential	PM	5,584	5,944	66.2	66.5	+0.3	No
	West of Cook Street	Residential	PM	9,520	10,224	68.5	68.8	+0.3	No
Country Club Drive									
9	East of Cook Street	Residential	PM	13,536	14,408	69.0	69.3	+0.3	No
	West of Cook Street	Commercial	PM	14,536	15,520	69.3	69.6	+0.3	No
16	East of Washington Street	Commercial	PM	10,880	11,544	67.8	68.1	+0.3	No
	West of Washington Street	Commercial	PM	17,952	19,056	70.2	70.5	+0.3	No
Classic Country Club Boulevard									
10	East of Varner Road	Open Space	PM	136	136	45.1	45.1	0.0	No
	West of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
Avenue 38									
11	East of Varner Road	Open Space	PM	400	424	51.8	52.1	+0.3	No
	West of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
13	East of Washington Street	Residential	PM	N/A	N/A	N/A	N/A	N/A	N/A

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs) Existing	Average Daily Trips (ADTs) EAP	Roadway Noise Levels (dBA) Existing	Roadway Noise Levels (dBA) EAP	Difference (dBA)	Threshold Exceeded?
	West of Washington Street	Open Space	PM	376	392	51.6	51.7	+0.1	No
Berkey Drive									
12	North of Varner Road	Commercial	PM	1,600	1,688	58.4	58.6	+0.2	No
	South of Varner Road	Freeway	PM	3,456	3,664	61.2	61.4	+0.2	No
Washington Street									
13	North of Avenue 38	Residential	PM	4,256	4,520	65.2	65.4	+0.2	No
	South of Avenue 38	Residential	PM	4,376	4,640	62.4	62.7	+0.3	No
14	North of Varner Road	Commercial	PM	16,200	17,192	69.4	69.6	+0.2	No
	South of Varner Road	Freeway	PM	25,192	27,216	71.4	71.7	+0.3	No
15	North of I-10 EB Ramps	Freeway	PM	25,504	27,552	71.4	71.8	+0.4	No
	South of I-10 EB Ramps	Commercial	PM	32,112	34,528	73.3	73.6	+0.3	No
16	North of Country Club Drive	Commercial	PM	32,192	34,600	73.3	73.6	+0.3	No
	South of Country Club Drive	Commercial	PM	24,640	26,592	71.7	72.1	+0.4	No

Source: Refer to ***Attachment C*** *for roadway noise calculation worksheets.*
Note: N/A = No Data as roadway segment does not exist.

On-Site Noise

The proposed Project would reduce the size of Planning Area 8 and make minor adjustments to the boundaries of Planning Areas 4, 6, and 7 in order to accommodate the addition of new Planning Area 11. Accordingly, a portion of the previously identified Industrial Park within Planning Area 8 would instead be developed into a new multi-purpose arena, event center, and training facility with practice ice, public open space, surface parking, and a retail skate shop.

Up to 46 AHL games would be held annually at the Arena, comprised of one to four pre-season games, thirty-four 34 regular season games, and, if the team reaches the post-season, between one to eight playoff games. The majority of home games would start at 7:00 P.M. and run approximately 2-1/2 hours in duration. Home games would be evenly split between weekdays and weekends. Additionally, up to 138 non-AHL game events could occur annually at the Arena including concerts, family shows, other sporting events, and other events. There would be an estimated 45 annual concerts, with a maximum attendance of approximately 11,700 patrons.[9] Concerts would typically occur on Friday and Saturday evenings within a 7:00 P.M. to 11:00 P.M. window. There would be an estimated 38 annual family shows which would occur in the daytime and evening periods (2:00 – 5:00 P.M., and 7:00 – 10:00 P.M.). The estimated average attendance at a family show would be 4,000 patrons, and maximum attendance would be 5,000 patrons. There would be an estimated 10 other sporting events annually. The estimated average attendance for other sporting events would be 7,000 patrons, with the estimated maximum attendance the same as maximum seating capacity for concerts (10,000) about twice per year. There would be an estimated 20 rental uses of the Arena annually, with an estimated average attendance level of 800 patrons and maximum attendance for 3,000 patrons. When open to the community, it is expected an average of twenty (20) to forty (40) people would use the facility per hour 7 days per week for six to eight hours per day.

All events associated with the Arena would occur indoors. According to the Transportation Analysis Report, there would be a short duration of peak arena traffic (i.e., two hours per event – the pre-event and post-event hours). Thus, parking lot noise would occur for approximately one hour pre-event and one hour post-event. The Arena parking lots would be accessible by four driveways along Varner Road. As previously mentioned, there are no existing sensitive receptors within 500 feet of the Project Site. The nearest sensitive receptors include residential uses approximately 615 feet to the south across I-10. On-site operational noise from the Project would be imperceptible at the nearest sensitive receptors due to freeway background noise and distance from Project Site. The new boundaries of the Industrial Park

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9 The Arena would provide 9,918 seats for hockey games. For non-AHL events with a maximum attendance of 11,700 patrons and requiring a larger floor area, a portion of the Arena would contain retractable seating.

within Planning Area 8 would border a majority of the northern portion of Planning Area 11, creating a buffer between the proposed east Arena parking lot and the residential uses within Planning Area 6B. The remaining northern portion of Planning Area 11 would be bordered by residential uses which would be setback to create a buffer between the proposed Arena, the four proposed driveways, and the traffic noise along Varner Road and the I-10 freeway. Specifically, the nearest on-site residential uses would be located approximately 230 feet from the Arena. Moreover, similar to the Specific Plan project the proposed residential uses would be required to include interior noise protection features to meet County standards. As such, on-site operational noise would not have a significant impact on the proposed residential uses.

CUMULATIVE NOISE

For purposes of this analysis, development of the related projects will be considered to contribute to cumulative noise impacts. Noise, by definition, is a localized phenomenon and drastically reduces as distance from the source increases. As a result, only related projects and growth in the general area of the Project site (within 500 feet) would contribute to cumulative noise impacts. Cumulative construction-noise impacts have the potential to occur when multiple construction projects in the local area generate noise within the same time frame and contribute to the local ambient noise environment. It is expected that, as with the Project, the related projects would implement noise reduction techniques such as mufflers, shields, sound barriers, which would minimize any noise-related nuisances during construction. In addition, distance attenuation and intervening structures would further reduce construction noise levels and not result in noticeable increases. Therefore, the combined construction-noise impacts of related projects within 500 feet and the Project's contribution would not cause a significant cumulative impact.

Table 9: Future (2023) Roadway Noise illustrates the change in noise levels from cumulative conditions without the Project-related vehicular traffic to cumulative conditions with the Project. The cumulative scenario represents ambient traffic growth, related project traffic growth, and the Project's incremental contribution to cumulative traffic within the City. As shown in **Table 9**, the maximum noise level increases during the PM peak hour along analyzed roadways would be 3.2 dBA along Varner Road east of Cook Street (Intersection 4). Thus, the Project would result in a permanent increase in cumulative noise levels and vehicular related noise impacts. It should be noted that the Project would not result in a 3 dBA increase along any other roadway segment. Moreover, Intersection 4 is not located in an area with sensitive receptors present. As such, roadway noise under this scenario would not result in a significant noise level increase at sensitive receptors.

Table 9
Future (2023) Roadway Noise

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs) Existing+ Cumulative	Average Daily Trips (ADTs) EAPC	Roadway Noise Levels (dBA) Existing+ Cumulative	Roadway Noise Levels (dBA) EAPC	Difference (dBA)	Threshold Exceeded?
Monterey Avenue									
1	North of Varner Road	Residential	PM	8,400	8,896	67.6	67.9	+0.3	No
	South of Varner Road	Commercial	PM	18,216	19,232	72.1	72.4	+0.3	No
2	North of I-10 EB Ramps	Commercial	PM	25,600	26,984	73.6	73.8	+0.2	No
	South of I-10 EB Ramps	Commercial	PM	36,440	38,320	76.3	76.6	+0.3	No
Varner Road									
1	East of Monterey Avenue	Residential	PM	12,272	13,096	67.5	67.8	+0.3	No
	West of Monterey Avenue	Commercial	PM	6,136	6,696	66.6	67.0	+0.4	No
3	East of Jack Ivey Drive	Residential	PM	3,960	4,496	63.9	64.5	+0.6	No
	West of Jack Ivey Drive	Open Space	PM	6,152	6,680	65.9	66.2	+0.3	No
4	East of Cook Street	Open Space	PM	3,464	7,160	63.9	67.1	+3.2	Yes
	West of Cook Street	Open Space	PM	3,976	4,512	64.0	64.5	+0.5	No
10	North of Classic Country Club Boulevard	Open Space	PM	6,416	10,304	64.4	66.5	+2.1	No
	South of Classic Country Club Boulevard	Freeway	PM	6,424	10,312	65.5	67.6	+2.1	No
11	North of Avenue 38	Open Space	PM	6,072	7,936	65.1	66.2	+1.1	No
	South of Avenue 38	Open Space	PM	5,688	7,528	63.3	64.6	+1.3	No
12	East of Berkey Drive	Commercial	PM	9,056	11,096	66.1	66.9	+0.8	No
	West of Berkey Drive	Commercial	PM	5,600	7,424	63.6	64.8	+1.2	No
14	East of Washington Street	Commercial	PM	16,792	18,824	69.2	69.7	+0.5	No
	West of Washington Street	Commercial	PM	8,312	10,304	65.7	66.6	+0.9	No

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs) Existing+ Cumulative	EAPC	Roadway Noise Levels (dBA) Existing+ Cumulative	EAPC	Difference (dBA)	Threshold Exceeded?
17	East of I-10 WB Ramps	Commercial	PM	14,792	15,904	68.6	68.9	+0.3	No
	West of I-10 WB Ramps	Commercial	PM	20,288	22,536	69.6	70.1	+0.5	No
I-10 EB Ramps									
2	East of Monterey Avenue	Open Space	PM	7,576	7,976	69.4	69.7	+0.3	No
	West of Monterey Avenue	Commercial	PM	8,352	8,656	69.9	70.0	+0.1	No
Jack Ivey Drive									
3	North of Varner Road	Residential	PM	4,768	4,808	58.2	58.2	0.0	No
	South of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
Cook Street									
4	North of Varner Road	Open Space	PM	2,048	2,104	60.0	60.2	+0.2	No
	South of Varner Road	Open Space	PM	5,824	9,216	65.1	67.1	+2.0	No
5	North of I-10 WB Ramps	Open Space	PM	6,808	10,272	65.8	67.6	+1.8	No
	South of I-10 WB Ramps	Freeway	PM	10,144	13,544	67.5	68.8	+1.3	No
6	North of I-10 EB Ramps	Freeway	PM	16,296	20,016	69.6	70.5	+0.9	No
	South of I-10 EB Ramps	Commercial	PM	29,264	31,576	73.2	73.5	+0.3	No
7	North of Gerald Ford Drive	Commercial	PM	27,008	29,176	74.0	74.3	+0.3	No
	South of Gerald Ford Drive	Commercial	PM	22,616	24,264	74.1	74.4	+0.3	No
8	North of Frank Sinatra Drive	Commercial	PM	22,504	24,144	73.2	73.5	+0.3	No
	South of Frank Sinatra Drive	Residential	PM	20,672	22,096	70.9	71.2	+0.3	No
9	North of Country Club Drive	Residential	PM	22,096	23,624	71.7	72.0	+0.3	No

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs)		Roadway Noise Levels (dBA)		Difference (dBA)	Threshold Exceeded?
				Existing+ Cumulative	EAPC	Existing+ Cumulative	EAPC		
	South of Country Club Drive	Residential	PM	22,368	23,816	71.2	71.5	+0.3	No
I-10 WB Ramps									
5	East of Cook Street	Open Space	PM	5,888	6,224	68.3	68.6	+0.3	No
	West of Cook Street	Open Space	PM	424	584	56.9	58.3	+1.4	No
17	North of Varner Road	Commercial	PM	N/A	N/A	N/A	N/A	N/A	N/A
	South of Varner Road	Commercial	PM	9,544	10,936	70.7	71.3	+0.6	No
I-10 EB Ramps									
6	East of Cook Street	Commercial	PM	7,936	8,352	69.6	69.9	+0.3	No
	West of Cook Street	Commercial	PM	7,464	9,912	69.4	70.6	+1.2	No
15	East of Washington Street	Commercial	PM	5,736	6,128	68.2	68.5	+0.3	No
	West of Washington Street	Commercial	PM	8,880	9,416	70.1	70.4	+0.3	No
Gerald Ford Drive									
7	East of Cook Street	Commercial	PM	8,088	8,496	67.5	67.7	+0.2	No
	West of Cook Street	Commercial	PM	17,776	18,608	72.2	72.4	+0.2	No
Frank Sinatra Drive									
8	East of Cook Street	Residential	PM	5,712	6,072	66.3	66.6	+0.3	No
	West of Cook Street	Residential	PM	10,264	10,968	68.9	69.2	+0.3	No
Country Club Drive									
9	East of Cook Street	Residential	PM	16,160	17,032	69.8	70.0	+0.2	No
	West of Cook Street	Commercial	PM	16,656	17,640	69.9	70.2	+0.3	No
16	East of Washington Street	Commercial	PM	12,240	12,904	68.3	68.5	+0.2	No
	West of Washington Street	Commercial	PM	19,344	20,448	70.5	70.8	+0.3	No

Intersection No.	Roadway Segment	Adjacent Land Use	Time Period	Average Daily Trips (ADTs) Existing+ Cumulative	Average Daily Trips (ADTs) EAPC	Roadway Noise Levels (dBA) Existing+ Cumulative	Roadway Noise Levels (dBA) EAPC	Difference (dBA)	Threshold Exceeded?
Classic Country Club Boulevard									
10	East of Varner Road	Open Space	PM	136	136	45.1	45.1	0.0	No
	West of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
Avenue 38									
11	East of Varner Road	Open Space	PM	400	424	51.8	52.1	+0.3	No
	West of Varner Road	Freeway	PM	N/A	N/A	N/A	N/A	N/A	N/A
13	East of Washington Street	Residential	PM	N/A	N/A	N/A	N/A	N/A	N/A
	West of Washington Street	Open Space	PM	376	392	51.6	51.7	+0.1	No
Berkey Drive									
12	North of Varner Road	Commercial	PM	1,600	1,688	58.4	58.6	+0.2	No
	South of Varner Road	Freeway	PM	3,456	3,664	61.2	61.4	+0.2	No
Washington Street									
13	North of Avenue 38	Residential	PM	4,416	4,680	65.3	65.6	+0.3	No
	South of Avenue 38	Residential	PM	4,536	4,800	62.6	62.8	+0.2	No
14	North of Varner Road	Commercial	PM	16,360	17,352	69.4	69.7	+0.3	No
	South of Varner Road	Freeway	PM	25,464	27,488	71.4	71.7	+0.3	No
15	North of I-10 EB Ramps	Freeway	PM	25,776	27,824	71.5	71.8	+0.3	No
	South of I-10 EB Ramps	Commercial	PM	32,456	34,872	73.3	73.6	+0.3	No
16	North of Country Club Drive	Commercial	PM	32,536	34,944	73.3	73.6	+0.3	No
	South of Country Club Drive	Commercial	PM	25,016	26,968	71.8	72.1	+0.3	No

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Source: Refer to ***Attachment C*** *for roadway noise calculation worksheets.*
Note: N/A = No Data as roadway segment does not exist.

CONSISTENCY WITH NORTHSTAR EIR

As discussed previously, the certified Specific Plan EIR found that construction noise impacts would be less than significant as the Specific Plan would adhere to Ordinance 457.90, Section 1G of the Riverside County Building and Safety Department which states that no construction activities would be undertaken between the hours of 6:00 PM and 6:00 AM during the months of June through September and between the hours of 6:00 PM and 7:00 AM during the months of October through May when a construction site is within one-quarter mile of an occupied residence(s). Moreover, the certified Specific Plan EIR found that while several roadways would experience a 3 dBA noise increase, these increases would either occur in areas absent of sensitive receptors or would be masked to imperceptible levels due to freeway background noise. Moreover, the certified Specific Plan EIR determined that noise exposure at outdoor spaces from combined maximum freeway noise would be 65 dBA. As such, the maximum plausible noise exposure for usable recreational space would meet, but not exceed Riverside County Standards.

Similar to the Specific Plan project, the Project would comply with Section 9.52.020 of the RCMC which exempts construction noise within one-quarter mile of an inhabited dwelling provided that construction does not occur between the hours of 6:00 PM and 6:00 AM during the months of June through September, and between the hours of 6:00 PM and 7:00 AM during the months of October through May. Moreover, with implementation of common construction best management practices, the Project would not exceed the exterior residential standard of 65 dBA at the nearest residential uses during construction. As shown in **Table 7**, the Project would not result in a significant vibration impact due to construction.

As shown in **Table 8** and **Table 9**, the Project would result in a maximum roadway noise level increase of 3.2 dBA during the PM peak hour along Varner Road east of Cook Street (Intersection 4). However, no other roadway segment would experience a 3 dBA or more increase in noise level due to Project operation. Moreover, Intersection 4 is not located in an area with sensitive receptors present. Additionally, the Proposed Specific Plan, which includes the Project, would not result in a substantial increase in the number of trips previously analyzed in the certified Specific Plan EIR for the Approved Specific Plan.[10] As the Proposed Specific Plan would not substantially increase trips, there would also not be a substantial increase in mobile sources of noise. Thus, the roadway noise from the Proposed Specific Plan would also not result in a substantial increase compared to the roadway noise from Approved Specific Plan. As such, roadway noise would not result in a significant noise level increase at sensitive receptors.

Freeway noise under the Project would be similar what was analyzed in the certified Specific Plan EIR. As such, outdoor spaces associated with the Project would experience a combined maximum freeway noise

10 The Mobility Group, Riverside County Arena Project Transportation Analysis Report, March 2021.

of 65 dBA. On-site ambient noise from building operations would be the similar to what was analyzed under certified Specific Plan EIR and nearby sensitive receptors would be designed to include structural noise attenuation features to meet County standards. As such, the Project would result in similar noise impacts as compared to the certified Specific Plan EIR. Impacts would remain less than significant.

Attachment A

Construction Noise Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat	1/7/2021
Case Descr	Grading

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Constructi	Commerci	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Grader	No	40	85		50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Roller	No	20		80	50	0
Roller	No	20		80	50	0
Dozer	No	40		81.7	50	0
Dozer	No	40		81.7	50	0
Scraper	No	40		83.6	50	0
Scraper	No	40		83.6	50	0
Scraper	No	40		83.6	50	0
Scraper	No	40		83.6	50	0
Scraper	No	40		83.6	50	0
Scraper	No	40		83.6	50	0
Backhoe	No	40		77.6	50	0
Backhoe	No	40		77.6	50	0

			Results													
	Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night		
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	89.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Nearest Re	Residentia	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Grader	No	40	85		615	0
Flat Bed Truck	No	40		74.3	615	0
Flat Bed Truck	No	40		74.3	615	0
Flat Bed Truck	No	40		74.3	615	0
Flat Bed Truck	No	40		74.3	615	0
Roller	No	20		80	615	0
Roller	No	20		80	615	0
Dozer	No	40		81.7	615	0

Dozer	No	40	81.7	615	0
Scraper	No	40	83.6	615	0
Scraper	No	40	83.6	615	0
Scraper	No	40	83.6	615	0
Scraper	No	40	83.6	615	0
Scraper	No	40	83.6	615	0
Scraper	No	40	83.6	615	0
Backhoe	No	40	77.6	615	0
Backhoe	No	40	77.6	615	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58.2	51.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58.2	51.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	61.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.2	67.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat	1/7/2021
Case Desc	Building Construction - Concrete

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Constructi	Commerci	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Auger Drill Rig	No	20		84.4	50	0
Auger Drill Rig	No	20		84.4	50	0
Roller	No	20		80	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Backhoe	No	40		77.6	50	0
Backhoe	No	40		77.6	50	0

			Results											
	Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)				
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	89.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Nearest R	Residentia	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Auger Drill Rig	No	20		84.4	615	0
Auger Drill Rig	No	20		84.4	615	0

Roller	No	20	80	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Backhoe	No	40	77.6	615	0
Backhoe	No	40	77.6	615	0

			Results											
	Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)				
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	62.6	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Auger Drill Rig	62.6	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58.2	51.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.2	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 1/7/2021
Case Descr Building Construction - Steel Erection

---- Receptor #1 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Constructi	Commerci	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50	0
Crane	No	16		80.6	50	0
Crane	No	16		80.6	50	0
Crane	No	16		80.6	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	89.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Descriptio	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Re	Residentia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	615	0
Crane	No	16		80.6	615	0
Crane	No	16		80.6	615	0
Crane	No	16		80.6	615	0
Forklift	No	40		85	615	0
Forklift	No	40		85	615	0
Forklift	No	40		85	615	0
Generator	No	50		80.6	615	0
Generator	No	50		80.6	615	0
Generator	No	50		80.6	615	0
Generator	No	50		80.6	615	0
Generator	No	50		80.6	615	0

Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0
Generator	No	50	80.6	615	0

			Results											
	Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)				
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58.8	55.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.2	67.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat	1/7/2021
Case Desc	Building Construction - Steel Erection

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Constructi	Commerci	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50	0
Crane	No	16		80.6	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Forklift	No	40		85	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0
Flat Bed Truck	No	40		74.3	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	85	81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	74.3	70.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	92.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Nearest Re	Residentia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	615	0
Crane	No	16		80.6	615	0

Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Forklift	No	40	85	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0
Flat Bed Truck	No	40	74.3	615	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	58.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	52.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.2	70.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 1/7/2021
Case Description:

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Constructi	Commerci	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	50	0
Roller	No	20		80	50	0
Roller	No	20		80	50	0
Dozer	No	40		81.7	50	0
Dozer	No	40		81.7	50	0
Dozer	No	40		81.7	50	0
Dozer	No	40		81.7	50	0
Backhoe	No	40		77.6	50	0
Backhoe	No	40		77.6	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.7	85.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Nearest Re	Residentia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	615	0
Roller	No	20		80	615	0
Roller	No	20		80	615	0
Dozer	No	40		81.7	615	0
Dozer	No	40		81.7	615	0
Dozer	No	40		81.7	615	0
Dozer	No	40		81.7	615	0
Backhoe	No	40		77.6	615	0
Backhoe	No	40		77.6	615	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	55.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58.2	51.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58.2	51.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	55.8	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.9	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 1/7/2021
Case Description:

---- Receptor #1 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Constructi	Commerci	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night
Nearest R	Residentia	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	615	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	55.9	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	55.9	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment B
Construction Vibration Worksheets

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	50	0.031	0.008	78
Jackhammer		1	0.035	50	0.012	0.003	70
Large bulldozer		1	0.089	50	0.031	0.008	78
Loaded trucks		1	0.076	50	0.027	0.007	77
Pile Drive (impact)		1	0.644	50	0.228	0.057	95
Vibratory Roller		1	0.210	50	0.074	0.019	85
Small bulldozer		1	0.003	50	0.001	0.000	48

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	615	0.001	0.000	45
Jackhammer		1	0.035	615	0.000	0.000	37
Large bulldozer		1	0.089	615	0.001	0.000	45
Loaded trucks		1	0.076	615	0.001	0.000	44
Pile Drive (impact)		1	0.644	615	0.005	0.001	62
Vibratory Roller		1	0.210	615	0.002	0.000	53
Small bulldozer		1	0.003	615	0.000	0.000	16

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Attachment C

Roadway Noise Worksheets

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 1
Monterey Avenue & Varner Road

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Monterey Avenue

Southbound

	right	through	left
Existing (2020)	11	379	22
EAP (2023)	12	402	23
Existing + Cumulative (2023)	11	384	33
EAPC (2023)	12	407	34
Project-Only	0	0	0
Ambient-Only	1	23	1

Varner Road

Eastbound

	left	through	right
Existing (2020)	28	72	207
EAP (2023)	30	100	220
Existing + Cumulative (2023)	28	98	207
EAPC (2023)	30	126	220
Project-Only	0	24	0
Ambient-Only	2	4	13

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Westbound

	right	through	left
Existing (2020)	153	192	465
EAP (2023)	162	205	494
Existing + Cumulative (2023)	160	207	753
EAPC (2023)	169	220	782
Project-Only	0	1	1
Ambient-Only	9	12	28

Northbound

	left	through	right
Existing (2020)	216	428	74
EAP (2023)	229	454	97
Existing + Cumulative (2023)	216	434	283
EAPC (2023)	229	460	306
Project-Only	0	0	18
Ambient-Only	13	26	5

ADT

Road	Monterey Avenue		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		Monterey Avenue	
Existing (2020)	8,168.0	14,152.0	7,824.0	5,808.0
EAP (2023)	8,664.0	15,168.0	8,648.0	6,368.0
Existing + Cumulative (2023)	8,400.0	18,216.0	12,272.0	6,136.0
EAPC (2023)	8,896.0	19,232.0	13,096.0	6,696.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME / Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Monterey Avenue n/o Varner Road											
Existing (2020)		4	8	8,168	55	50	0	0	1.8%	0.7%	67.5
EAP (2023)		4	8	8,664	55	50	0	0	1.8%	0.7%	67.8
Existing + Cumulative (2023)		4	8	8,400	55	50	0	0	1.8%	0.7%	67.6
EAPC (2023)		4	8	8,896	55	50	0	0	1.8%	0.7%	67.9
Monterey Avenue s/o Varner Road											
Existing (2020)		7	0	14,152	55	50	0	0	1.8%	0.7%	71.0
EAP (2023)		7	0	15,168	55	50	0	0	1.8%	0.7%	71.3
Existing + Cumulative (2023)		7	0	18,216	55	50	0	0	1.8%	0.7%	72.1
EAPC (2023)		7	0	19,232	55	50	0	0	1.8%	0.7%	72.4
Varner Road e/o Monterey Avenue											
Existing (2020)		4	22	7,824	45	50	0	0	1.8%	0.7%	65.6
EAP (2023)		4	22	8,648	45	50	0	0	1.8%	0.7%	66.0
Existing + Cumulative (2023)		4	22	12,272	45	50	0	0	1.8%	0.7%	67.5
EAPC (2023)		4	22	13,096	45	50	0	0	1.8%	0.7%	67.8
Varner Road w/o Monterey Avenue											
Existing (2020)		4	20	5,808	55	50	0	0	1.8%	0.7%	66.4
EAP (2023)		4	20	6,368	55	50	0	0	1.8%	0.7%	66.8
Existing + Cumulative (2023)		4	20	6,136	55	50	0	0	1.8%	0.7%	66.6
EAPC (2023)		4	20	6,696	55	50	0	0	1.8%	0.7%	67.0

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Monterey Avenue n/o Varner Road																									
Existing (2020)	6,347	1,037	784	129	51	7	2	11	5	72.7	79.9	83.8	0.4	67.5	57.8	57.8	68.4	64.5	50.3	47.6	64.8	51.3	48.4	48.5	54.4
EAP (2023)	6,732	1,100	832	136	54	8	2	12	5	72.7	79.9	83.8	0.4	67.8	58.1	58.0	68.6	64.8	50.5	47.9	65.0	51.6	48.6	48.8	54.7
Existing + Cumulative (2023)	6,527	1,067	806	132	52	8	2	11	5	72.7	79.9	83.8	0.4	67.6	58.0	57.9	68.5	64.7	50.4	47.7	64.9	51.5	48.5	48.7	54.5
EAPC (2023)	6,912	1,130	854	140	55	8	2	12	5	72.7	79.9	83.8	0.4	67.9	58.2	58.1	68.7	64.9	50.6	48.0	65.2	51.7	48.8	48.9	54.8
Monterey Avenue s/o Varner Road																									
Existing (2020)	10,996	1,797	1,359	223	88	13	3	19	8	72.7	79.9	83.8	1.5	71.0	61.3	61.3	71.9	68.0	53.8	51.1	68.3	54.9	51.9	52.0	57.9
EAP (2023)	11,786	1,926	1,456	239	95	14	3	21	9	72.7	79.9	83.8	1.5	71.3	61.6	61.6	72.2	68.3	54.1	51.4	68.6	55.2	52.2	52.4	58.2
Existing + Cumulative (2023)	14,154	2,313	1,749	287	114	17	4	25	10	72.7	79.9	83.8	1.5	72.1	62.4	62.4	73.0	69.1	54.9	52.2	69.4	55.9	53.0	53.1	59.0
EAPC (2023)	14,943	2,442	1,846	303	120	17	4	26	11	72.7	79.9	83.8	1.5	72.4	62.7	62.6	73.2	69.4	55.1	52.5	69.6	56.2	53.2	53.4	59.3
Varner Road e/o Monterey Avenue																									
Existing (2020)	6,079	994	751	123	49	7	2	11	4	69.3	77.6	82.1	0.8	65.2	56.7	57.2	66.4	62.3	49.1	47.0	62.6	49.1	47.3	48.0	52.9
EAP (2023)	6,719	1,098	830	136	54	8	2	12	5	69.3	77.6	82.1	0.8	65.7	57.1	57.6	66.8	62.7	49.6	47.5	63.0	49.5	47.7	48.4	53.4
Existing + Cumulative (2023)	9,535	1,559	1,178	193	77	11	2	17	7	69.3	77.6	82.1	0.8	67.2	58.7	59.2	68.3	64.2	51.1	49.0	64.5	51.0	49.2	49.9	54.9
EAPC (2023)	10,176	1,663	1,257	206	82	12	3	18	7	69.3	77.6	82.1	0.8	67.5	58.9	59.4	68.6	64.5	51.4	49.3	64.8	51.3	49.5	50.2	55.2
Varner Road w/o Monterey Avenue																									
Existing (2020)	4,513	738	558	91	36	5	1	8	3	72.7	79.9	83.8	0.7	66.4	56.7	56.6	67.2	63.4	49.1	46.5	63.7	50.2	47.2	47.4	53.3
EAP (2023)	4,948	809	611	100	40	6	1	9	4	72.7	79.9	83.8	0.7	66.8	57.1	57.0	67.6	63.8	49.5	46.9	64.0	50.6	47.6	47.8	53.7
Existing + Cumulative (2023)	4,768	779	589	97	38	6	1	8	3	72.7	79.9	83.8	0.7	66.6	56.9	56.9	67.5	63.6	49.4	46.7	63.9	50.5	47.5	47.6	53.5
EAPC (2023)	5,203	850	643	105	42	6	1	9	4	72.7	79.9	83.8	0.7	67.0	57.3	57.3	67.8	64.0	49.7	47.1	64.3	50.8	47.9	48.0	53.9

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)

PM Peak Hour

Intersection: 2

Monterey Avenue & I-10 EB Ramps

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Monterey Avenue

Southbound

	right	through	left
Existing (2020)	0	818	164
EAP (2023)	0	869	174
Existing + Cumulative (2023)	0	1,049	164
EAPC (2023)	0	1,100	174
Project-Only	0	1	0
Ambient-Only	0	50	10

I-10 EB Ramps

Eastbound

	left	through	right
Existing (2020)	47	2	572
EAP (2023)	50	2	607
Existing + Cumulative (2023)	152	2	890
EAPC (2023)	155	2	925
Project-Only	0	0	0
Ambient-Only	3	0	35

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Westbound

	right	through	left
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

Northbound

	left	through	right
Existing (2020)	0	1,484	649
EAP (2023)	0	1,593	689
Existing + Cumulative (2023)	0	1,835	781
EAPC (2023)	0	1,944	821
Project-Only	0	18	0
Ambient-Only	0	91	40

ADT

Road	Monterey Avenue		I-10 EB Ramps	
Leg	North of	South of	East of	West of
Cross Street	I-10 EB Ramps		Monterey Avenue	
Existing (2020)	20,104.0	28,184.0	6,520.0	4,968.0
EAP (2023)	21,488.0	30,064.0	6,920.0	5,272.0
Existing + Cumulative (2023)	25,600.0	36,440.0	7,576.0	8,352.0
EAPC (2023)	26,984.0	38,320.0	7,976.0	8,656.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Monterey Avenue n/o I-10 EB Ramps											
Existing (2020)		7	0	20,104	55	50	0	0	1.8%	0.7%	72.6
EAP (2023)		7	0	21,488	55	50	0	0	1.8%	0.7%	72.8
Existing + Cumulative (2023)		7	0	25,600	55	50	0	0	1.8%	0.7%	73.6
EAPC (2023)		7	0	26,984	55	50	0	0	1.8%	0.7%	73.8
Monterey Avenue s/o I-10 EB Ramps											
Existing (2020)		7	13	28,184	55	50	0	0	1.8%	0.7%	75.2
EAP (2023)		7	13	30,064	55	50	0	0	1.8%	0.7%	75.5
Existing + Cumulative (2023)		7	13	36,440	55	50	0	0	1.8%	0.7%	76.3
EAPC (2023)		7	13	38,320	55	50	0	0	1.8%	0.7%	76.6
I-10 EB Ramps e/o Monterey Avenue											
Existing (2020)		1	0	6,520	70	50	0	0	1.8%	0.7%	68.8
EAP (2023)		1	0	6,920	70	50	0	0	1.8%	0.7%	69.0
Existing + Cumulative (2023)		1	0	7,576	70	50	0	0	1.8%	0.7%	69.4
EAPC (2023)		1	0	7,976	70	50	0	0	1.8%	0.7%	69.7
I-10 EB Ramps w/o Monterey Avenue											
Existing (2020)		1	0	4,968	70	50	0	0	1.8%	0.7%	67.6
EAP (2023)		1	0	5,272	70	50	0	0	1.8%	0.7%	67.9
Existing + Cumulative (2023)		1	0	8,352	70	50	0	0	1.8%	0.7%	69.9
EAPC (2023)		1	0	8,656	70	50	0	0	1.8%	0.7%	70.0

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels Dist A	MT	HT	Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Monterey Avenue n/o I-10 EB Ramps																									
Existing (2020)	####	2,553	1,930	316	125	18	4	27	11	72.7	79.9	83.8	1.5	72.6	62.9	62.8	73.4	69.6	55.3	52.6	69.8	56.4	53.4	53.6	59.5
EAP (2023)	####	2,729	2,063	338	134	20	4	29	12	72.7	79.9	83.8	1.5	72.8	63.2	63.1	73.7	69.9	55.6	52.9	70.1	56.7	53.7	53.9	59.7
Existing + Cumulative (2023)	####	3,251	2,458	403	160	23	5	35	14	72.7	79.9	83.8	1.5	73.6	63.9	63.9	74.4	70.6	56.3	53.7	70.9	57.4	54.5	54.6	60.5
EAPC (2023)	####	3,427	2,590	425	168	25	5	37	15	72.7	79.9	83.8	1.5	73.8	64.1	64.1	74.7	70.8	56.6	53.9	71.1	57.7	54.7	54.9	60.7
Monterey Avenue s/o I-10 EB Ramps																									
Existing (2020)	####	3,579	2,706	444	176	26	6	38	16	72.7	79.9	83.8	2.7	75.2	65.5	65.5	76.1	72.2	58.0	55.3	72.5	59.0	56.1	56.2	62.1
EAP (2023)	####	3,818	2,886	473	188	27	6	41	17	72.7	79.9	83.8	2.7	75.5	65.8	65.8	76.3	72.5	58.2	55.6	72.8	59.3	56.4	56.5	62.4
Existing + Cumulative (2023)	####	4,628	3,498	573	227	33	7	49	21	72.7	79.9	83.8	2.7	76.3	66.7	66.6	77.2	73.4	59.1	56.4	73.6	60.2	57.2	57.4	63.2
EAPC (2023)	####	4,867	3,679	603	239	35	8	52	22	72.7	79.9	83.8	2.7	76.6	66.9	66.8	77.4	73.6	59.3	56.6	73.8	60.4	57.4	57.6	63.5
I-10 EB Ramps e/o Monterey Avenue																									
Existing (2020)	5,066	828	626	103	41	6	1	9	4	76.8	82.5	85.8	-0.1	69.1	58.0	57.3	69.7	66.1	50.4	47.1	66.3	52.9	48.6	48.1	55.2
EAP (2023)	5,377	879	664	109	43	6	1	9	4	76.8	82.5	85.8	-0.1	69.3	58.3	57.6	69.9	66.4	50.7	47.4	66.5	53.2	48.8	48.3	55.5
Existing + Cumulative (2023)	5,887	962	727	119	47	7	2	10	4	76.8	82.5	85.8	-0.1	69.7	58.7	57.9	70.3	66.8	51.1	47.8	66.9	53.6	49.2	48.7	55.9
EAPC (2023)	6,197	1,013	766	126	50	7	2	11	5	76.8	82.5	85.8	-0.1	70.0	58.9	58.2	70.5	67.0	51.3	48.0	67.2	53.8	49.4	48.9	56.1
I-10 EB Ramps w/o Monterey Avenue																									
Existing (2020)	3,860	631	477	78	31	5	1	7	3	76.8	82.5	85.8	-0.1	67.9	56.8	56.1	68.5	64.9	49.3	45.9	65.1	51.7	47.4	46.9	54.0
EAP (2023)	4,096	670	506	83	33	5	1	7	3	76.8	82.5	85.8	-0.1	68.2	57.1	56.4	68.8	65.2	49.5	46.2	65.4	52.0	47.6	47.1	54.3
Existing + Cumulative (2023)	6,490	1,061	802	131	52	8	2	11	5	76.8	82.5	85.8	-0.1	70.2	59.1	58.4	70.7	67.2	51.5	48.2	67.4	54.0	49.6	49.1	56.3
EAPC (2023)	6,726	1,099	831	136	54	8	2	12	5	76.8	82.5	85.8	-0.1	70.3	59.3	58.5	70.9	67.3	51.7	48.4	67.5	54.1	49.8	49.3	56.4

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 3
Varner Road & Jack Ivey Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Jack Ivey Drive

Southbound

	right	through	left
Existing (2020)	23	0	23
EAP (2023)	24	0	24
Existing + Cumulative (2023)	170	0	63
EAPC (2023)	171	0	64
Project-Only	0	0	0
Ambient-Only	1	0	1

Varner Road

Eastbound

	left	through	right
Existing (2020)	19	122	0
EAP (2023)	20	171	0
Existing + Cumulative (2023)	265	122	0
EAPC (2023)	266	171	0
Project-Only	0	42	0
Ambient-Only	1	7	0

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Westbound

	right	through	left
Existing (2020)	27	212	0
EAP (2023)	29	227	0
Existing + Cumulative (2023)	98	212	0
EAPC (2023)	100	227	0
Project-Only	0	2	0
Ambient-Only	2	13	0

Northbound

	left	through	right
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

ADT

Road	Jack Ivey Drive		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		Jack Ivey Drive	
Existing (2020)	736.0	0.0	3,072.0	3,008.0
EAP (2023)	776.0	0.0	3,608.0	3,536.0
Existing + Cumulative (2023)	4,768.0	0.0	3,960.0	6,152.0
EAPC (2023)	4,808.0	0.0	4,496.0	6,680.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center tc Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Heavy Trucks	dB(A) CNEL
Jack Ivey Drive n/o Varner Road											
Existing (2020)		4	20	736	25	50	0	0	1.8%	0.7%	50.1
EAP (2023)		4	20	776	25	50	0	0	1.8%	0.7%	50.3
Existing + Cumulative (2023)		4	20	4,768	25	50	0	0	1.8%	0.7%	58.2
EAPC (2023)		4	20	4,808	25	50	0	0	1.8%	0.7%	58.2
Jack Ivey Drive s/o Varner Road											
Existing (2020)		0	0	0	25	50	0	0	1.8%	0.7%	#NUM!
EAP (2023)		0	0	0	25	50	0	0	1.8%	0.7%	#NUM!
Existing + Cumulative (2023)		0	0	0	25	50	0	0	1.8%	0.7%	#NUM!
EAPC (2023)		0	0	0	25	50	0	0	1.8%	0.7%	#NUM!
Varner Road e/o Jack Ivey Drive											
Existing (2020)		2	0	3,072	55	50	0	0	1.8%	0.7%	62.8
EAP (2023)		2	0	3,608	55	50	0	0	1.8%	0.7%	63.5
Existing + Cumulative (2023)		2	0	3,960	55	50	0	0	1.8%	0.7%	63.9
EAPC (2023)		2	0	4,496	55	50	0	0	1.8%	0.7%	64.5
Varner Road w/o Jack Ivey Drive											
Existing (2020)		2	0	3,008	55	50	0	0	1.8%	0.7%	62.7
EAP (2023)		2	0	3,536	55	50	0	0	1.8%	0.7%	63.4
Existing + Cumulative (2023)		2	0	6,152	55	50	0	0	1.8%	0.7%	65.9
EAPC (2023)		2	0	6,680	55	50	0	0	1.8%	0.7%	66.2

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Jack Ivey Drive n/o Varner Road																									
Existing (2020)	572	93	71	12	5	1	0	1	0	59.4	71.1	78.7	0.7	47.6	42.4	46.0	50.6	44.6	34.8	35.9	45.5	31.4	32.9	36.8	39.1
EAP (2023)	603	99	74	12	5	1	0	1	0	59.4	71.1	78.7	0.7	47.8	42.6	46.3	50.8	44.8	35.0	36.1	45.7	31.6	33.2	37.0	39.3
Existing + Cumulative (2023)	3,705	606	458	75	30	4	1	6	3	59.4	71.1	78.7	0.7	55.7	50.5	54.1	58.7	52.7	42.9	44.0	53.6	39.5	41.1	44.9	47.2
EAPC (2023)	3,736	611	462	76	30	4	1	7	3	59.4	71.1	78.7	0.7	55.7	50.5	54.2	58.7	52.7	43.0	44.0	53.7	39.5	41.1	44.9	47.2
Jack Ivey Drive s/o Varner Road																									
Existing (2020)	0	0	0	0	0	0	0	0	0	59.4	71.1	78.7	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAP (2023)	0	0	0	0	0	0	0	0	0	59.4	71.1	78.7	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Existing + Cumulative (2023)	0	0	0	0	0	0	0	0	0	59.4	71.1	78.7	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAPC (2023)	0	0	0	0	0	0	0	0	0	59.4	71.1	78.7	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Varner Road e/o Jack Ivey Drive																									
Existing (2020)	2,387	390	295	48	19	3	1	4	2	72.7	79.9	83.8	0.0	62.8	53.2	53.1	63.7	59.9	45.6	42.9	60.1	46.7	43.7	43.9	49.7
EAP (2023)	2,803	458	346	57	23	3	1	5	2	72.7	79.9	83.8	0.0	63.5	53.8	53.8	64.4	60.6	46.3	43.6	60.8	47.4	44.4	44.6	50.4
Existing + Cumulative (2023)	3,077	503	380	62	25	4	1	5	2	72.7	79.9	83.8	0.0	63.9	54.3	54.2	64.8	61.0	46.7	44.0	61.2	47.8	44.8	45.0	50.8
EAPC (2023)	3,493	571	432	71	28	4	1	6	3	72.7	79.9	83.8	0.0	64.5	54.8	54.7	65.3	61.5	47.2	44.6	61.8	48.3	45.4	45.5	51.4
Varner Road w/o Jack Ivey Drive																									
Existing (2020)	2,337	382	289	47	19	3	1	4	2	72.7	79.9	83.8	0.0	62.7	53.1	53.0	63.6	59.8	45.5	42.8	60.0	46.6	43.6	43.8	49.6
EAP (2023)	2,747	449	339	56	22	3	1	5	2	72.7	79.9	83.8	0.0	63.4	53.8	53.7	64.3	60.5	46.2	43.5	60.7	47.3	44.3	44.5	50.3
Existing + Cumulative (2023)	4,780	781	591	97	38	6	1	8	3	72.7	79.9	83.8	0.0	65.9	56.2	56.1	66.7	62.9	48.6	45.9	63.1	49.7	46.7	46.9	52.8
EAPC (2023)	5,190	848	641	105	42	6	1	9	4	72.7	79.9	83.8	0.0	66.2	56.5	56.5	67.0	63.2	48.9	46.3	63.5	50.0	47.1	47.2	53.1

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 4
Cook Street & Varner Road

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	3	67	7
EAP (2023)	3	71	7
Existing + Cumulative (2023)	3	123	7
EAPC (2023)	3	127	7
Project-Only	0	0	0
Ambient-Only	0	4	0

Varner Road

Eastbound

	left	through	right
Existing (2020)	2	89	53
EAP (2023)	2	136	56
Existing + Cumulative (2023)	2	93	89
EAPC (2023)	2	140	92
Project-Only	0	42	0
Ambient-Only	0	5	3

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Westbound

	right	through	left
Existing (2020)	2	114	104
EAP (2023)	2	123	131
Existing + Cumulative (2023)	2	122	104
EAPC (2023)	2	131	131
Project-Only	0	2	21
Ambient-Only	0	7	6

Northbound

	left	through	right
Existing (2020)	125	45	105
EAP (2023)	133	48	484
Existing + Cumulative (2023)	188	119	105
EAPC (2023)	196	122	484
Project-Only	0	0	373
Ambient-Only	8	3	6

ADT

Road	Cook Street		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		Cook Street	
Existing (2020)	1,008.0	3,992.0	3,368.0	3,088.0
EAP (2023)	1,064.0	7,384.0	7,064.0	3,624.0
Existing + Cumulative (2023)	2,048.0	5,824.0	3,464.0	3,976.0
EAPC (2023)	2,104.0	9,216.0	7,160.0	4,512.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o Varner Road											
Existing (2020)		2	0	1,008	50	50	0	0	1.8%	0.7%	57.0
EAP (2023)		2	0	1,064	50	50	0	0	1.8%	0.7%	57.2
Existing + Cumulative (2023)		2	0	2,048	50	50	0	0	1.8%	0.7%	60.0
EAPC (2023)		2	0	2,104	50	50	0	0	1.8%	0.7%	60.2
Cook Street s/o Varner Road											
Existing (2020)		4	13	3,992	50	50	0	0	1.8%	0.7%	63.5
EAP (2023)		4	13	7,384	50	50	0	0	1.8%	0.7%	66.2
Existing + Cumulative (2023)		4	13	5,824	50	50	0	0	1.8%	0.7%	65.1
EAPC (2023)		4	13	9,216	50	50	0	0	1.8%	0.7%	67.1
Varner Road e/o Cook Street											
Existing (2020)		4	13	3,368	55	50	0	0	1.8%	0.7%	63.8
EAP (2023)		4	13	7,064	55	50	0	0	1.8%	0.7%	67.0
Existing + Cumulative (2023)		4	13	3,464	55	50	0	0	1.8%	0.7%	63.9
EAPC (2023)		4	13	7,160	55	50	0	0	1.8%	0.7%	67.1
Varner Road w/o Cook Street											
Existing (2020)		2	0	3,088	55	50	0	0	1.8%	0.7%	62.9
EAP (2023)		2	0	3,624	55	50	0	0	1.8%	0.7%	63.6
Existing + Cumulative (2023)		2	0	3,976	55	50	0	0	1.8%	0.7%	64.0
EAPC (2023)		2	0	4,512	55	50	0	0	1.8%	0.7%	64.5

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj
Cook Street n/o Varner Road													
Existing (2020)	783	128	97	16	6	1	0	1	1	71.1	78.8	83.0	0.0
EAP (2023)	827	135	102	17	7	1	0	1	1	71.1	78.8	83.0	0.0
Existing + Cumulative (2023)	1,591	260	197	32	13	2	0	3	1	71.1	78.8	83.0	0.0
EAPC (2023)	1,635	267	202	33	13	2	0	3	1	71.1	78.8	83.0	0.0
Cook Street s/o Varner Road													
Existing (2020)	3,102	507	383	63	25	4	1	5	2	71.1	78.8	83.0	0.5
EAP (2023)	5,737	938	709	116	46	7	1	10	4	71.1	78.8	83.0	0.5
Existing + Cumulative (2023)	4,525	740	559	92	36	5	1	8	3	71.1	78.8	83.0	0.5
EAPC (2023)	7,161	1,170	885	145	57	8	2	12	5	71.1	78.8	83.0	0.5
Varner Road e/o Cook Street													
Existing (2020)	2,617	428	323	53	21	3	1	5	2	72.7	79.9	83.8	0.5
EAP (2023)	5,489	897	678	111	44	6	1	10	4	72.7	79.9	83.8	0.5
Existing + Cumulative (2023)	2,692	440	333	55	22	3	1	5	2	72.7	79.9	83.8	0.5
EAPC (2023)	5,563	909	687	113	45	7	1	10	4	72.7	79.9	83.8	0.5
Varner Road w/o Cook Street													
Existing (2020)	2,399	392	296	49	19	3	1	4	2	72.7	79.9	83.8	0.0
EAP (2023)	2,816	460	348	57	23	3	1	5	2	72.7	79.9	83.8	0.0
Existing + Cumulative (2023)	3,089	505	382	63	25	4	1	5	2	72.7	79.9	83.8	0.0
EAPC (2023)	3,506	573	433	71	28	4	1	6	3	72.7	79.9	83.8	0.0

Segment	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Cook Street n/o Varner Road												
Existing (2020)	56.8	47.7	47.9	57.8	53.8	40.1	37.7	54.1	40.6	38.2	38.6	44.1
EAP (2023)	57.0	47.9	48.1	58.0	54.1	40.3	37.9	54.3	40.9	38.4	38.9	44.3
Existing + Cumulative (2023)	59.9	50.7	51.0	60.9	56.9	43.2	40.8	57.2	43.7	41.3	41.7	47.1
EAPC (2023)	60.0	50.9	51.1	61.0	57.0	43.3	40.9	57.3	43.8	41.4	41.8	47.3
Cook Street s/o Varner Road												
Existing (2020)	63.3	54.2	54.4	64.3	60.4	46.6	44.2	60.6	47.2	44.8	45.2	50.6
EAP (2023)	66.0	56.9	57.1	67.0	63.0	49.3	46.9	63.3	49.8	47.4	47.9	53.3
Existing + Cumulative (2023)	65.0	55.8	56.1	66.0	62.0	48.3	45.9	62.3	48.8	46.4	46.8	52.2
EAPC (2023)	67.0	57.8	58.0	67.9	64.0	50.3	47.9	64.3	50.8	48.4	48.8	54.2
Varner Road e/o Cook Street												
Existing (2020)	63.8	54.1	54.1	64.6	60.8	46.5	43.9	61.1	47.6	44.7	44.8	50.7
EAP (2023)	67.0	57.3	57.3	67.9	64.0	49.7	47.1	64.3	50.8	47.9	48.0	53.9
Existing + Cumulative (2023)	63.9	54.2	54.2	64.8	60.9	46.7	44.0	61.2	47.7	44.8	44.9	50.8
EAPC (2023)	67.1	57.4	57.3	67.9	64.1	49.8	47.2	64.3	50.9	47.9	48.1	54.0
Varner Road w/o Cook Street												
Existing (2020)	62.9	53.2	53.1	63.7	59.9	45.6	43.0	60.1	46.7	43.7	43.9	49.8
EAP (2023)	63.6	53.9	53.8	64.4	60.6	46.3	43.6	60.8	47.4	44.4	44.6	50.5
Existing + Cumulative (2023)	64.0	54.3	54.2	64.8	61.0	46.7	44.0	61.2	47.8	44.8	45.0	50.9
EAPC (2023)	64.5	54.8	54.8	65.3	61.5	47.2	44.6	61.8	48.3	45.4	45.5	51.4

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 5
Cook Street & I-10 WB Ramps

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	50	228	0
EAP (2023)	70	246	0
Existing + Cumulative (2023)	50	320	0
EAPC (2023)	70	338	0
Project-Only	17	4	0
Ambient-Only	3	14	0

I-10 WB Ramps

Eastbound

	left	through	right
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

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Westbound

	right	through	left
Existing (2020)	58	3	448
EAP (2023)	73	3	475
Existing + Cumulative (2023)	133	3	600
EAPC (2023)	148	3	627
Project-Only	11	0	0
Ambient-Only	4	0	27

Northbound

	left	through	right
Existing (2020)	0	286	0
EAP (2023)	0	666	0
Existing + Cumulative (2023)	0	348	0
EAPC (2023)	0	728	0
Project-Only	0	362	0
Ambient-Only	0	18	0

ADT

Road	Cook Street		I-10 WB Ramps	
Leg	North of	South of	East of	West of
Cross Street	I-10 WB Ramps		Cook Street	
Existing (2020)	4,976.0	7,696.0	4,072.0	424.0
EAP (2023)	8,440.0	11,096.0	4,408.0	584.0
Existing + Cumulative (2023)	6,808.0	10,144.0	5,888.0	424.0
EAPC (2023)	10,272.0	13,544.0	6,224.0	584.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o I-10 WB Ramps											
Existing (2020)		4	13	4,976	50	50	0	0	1.8%	0.7%	64.5
EAP (2023)		4	13	8,440	50	50	0	0	1.8%	0.7%	66.8
Existing + Cumulative (2023)		4	13	6,808	50	50	0	0	1.8%	0.7%	65.8
EAPC (2023)		4	13	10,272	50	50	0	0	1.8%	0.7%	67.6
Cook Street s/o I-10 WB Ramps											
Existing (2020)		5	0	7,696	50	50	0	0	1.8%	0.7%	66.3
EAP (2023)		5	0	11,096	50	50	0	0	1.8%	0.7%	67.9
Existing + Cumulative (2023)		5	0	10,144	50	50	0	0	1.8%	0.7%	67.5
EAPC (2023)		5	0	13,544	50	50	0	0	1.8%	0.7%	68.8
I-10 WB Ramps e/o Cook Street											
Existing (2020)		1	0	4,072	70	50	0	0	1.8%	0.7%	66.7
EAP (2023)		1	0	4,408	70	50	0	0	1.8%	0.7%	67.1
Existing + Cumulative (2023)		1	0	5,888	70	50	0	0	1.8%	0.7%	68.3
EAPC (2023)		1	0	6,224	70	50	0	0	1.8%	0.7%	68.6
I-10 WB Ramps w/o Cook Street											
Existing (2020)		1	0	424	70	50	0	0	1.8%	0.7%	56.9
EAP (2023)		1	0	584	70	50	0	0	1.8%	0.7%	58.3
Existing + Cumulative (2023)		1	0	424	70	50	0	0	1.8%	0.7%	56.9
EAPC (2023)		1	0	584	70	50	0	0	1.8%	0.7%	58.3

ROADWAY NAME Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Cook Street n/o I-10 WB Ramps																									
Existing (2020)	3,866	632	478	78	31	5	1	7	3	71.1	78.8	83.0	0.5	64.3	55.2	55.4	65.3	61.3	47.6	45.2	61.6	48.1	45.7	46.1	51.6
EAP (2023)	6,558	1,072	810	133	53	8	2	11	5	71.1	78.8	83.0	0.5	66.6	57.5	57.7	67.6	63.6	49.9	47.5	63.9	50.4	48.0	48.4	53.9
Existing + Cumulative (2023)	5,290	865	654	107	42	6	1	9	4	71.1	78.8	83.0	0.5	65.7	56.5	56.7	66.6	62.7	48.9	46.6	63.0	49.5	47.1	47.5	52.9
EAPC (2023)	7,981	1,305	986	162	64	9	2	14	6	71.1	78.8	83.0	0.5	67.4	58.3	58.5	68.4	64.5	50.7	48.4	64.8	51.3	48.9	49.3	54.7
Cook Street s/o I-10 WB Ramps																									
Existing (2020)	5,980	977	739	121	48	7	2	10	4	71.1	78.8	83.0	0.5	66.2	57.0	57.2	67.1	63.2	49.4	47.1	63.5	50.0	47.6	48.0	53.4
EAP (2023)	8,622	1,409	1,065	175	69	10	2	15	6	71.1	78.8	83.0	0.5	67.8	58.6	58.8	68.7	64.8	51.0	48.7	65.1	51.6	49.2	49.6	55.0
Existing + Cumulative (2023)	7,882	1,288	974	160	63	9	2	14	6	71.1	78.8	83.0	0.5	67.4	58.2	58.4	68.3	64.4	50.6	48.3	64.7	51.2	48.8	49.2	54.6
EAPC (2023)	####	1,720	1,300	213	84	12	3	18	8	71.1	78.8	83.0	0.5	68.6	59.5	59.7	69.6	65.6	51.9	49.5	65.9	52.4	50.0	50.5	55.9
I-10 WB Ramps e/o Cook Street																									
Existing (2020)	3,164	517	391	64	25	4	1	6	2	76.8	82.5	85.8	-0.1	67.0	56.0	55.2	67.6	64.1	48.4	45.1	64.2	50.9	46.5	46.0	53.2
EAP (2023)	3,425	560	423	69	27	4	1	6	2	76.8	82.5	85.8	-0.1	67.4	56.3	55.6	68.0	64.4	48.7	45.4	64.6	51.2	46.9	46.4	53.5
Existing + Cumulative (2023)	4,575	748	565	93	37	5	1	8	3	76.8	82.5	85.8	-0.1	68.6	57.6	56.9	69.2	65.7	50.0	46.7	65.8	52.5	48.1	47.6	54.8
EAPC (2023)	4,836	790	598	98	39	6	1	8	4	76.8	82.5	85.8	-0.1	68.9	57.8	57.1	69.5	65.9	50.2	46.9	66.1	52.7	48.4	47.9	55.0
I-10 WB Ramps w/o Cook Street																									
Existing (2020)	329	54	41	7	3	0	0	1	0	76.8	82.5	85.8	-0.1	57.2	46.2	45.4	57.8	54.2	38.6	35.3	54.4	41.0	36.7	36.2	43.3
EAP (2023)	454	74	56	9	4	1	0	1	0	76.8	82.5	85.8	-0.1	58.6	47.5	46.8	59.2	55.6	40.0	36.6	55.8	42.4	38.1	37.6	44.7
Existing + Cumulative (2023)	329	54	41	7	3	0	0	1	0	76.8	82.5	85.8	-0.1	57.2	46.2	45.4	57.8	54.2	38.6	35.3	54.4	41.0	36.7	36.2	43.3
EAPC (2023)	454	74	56	9	4	1	0	1	0	76.8	82.5	85.8	-0.1	58.6	47.5	46.8	59.2	55.6	40.0	36.6	55.8	42.4	38.1	37.6	44.7

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena
PM Peak Hour

rev. (Date)

Intersection: 6
Cook Street & I-10 EB Ramps

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	0	631	51
EAP (2023)	0	674	55
Existing + Cumulative (2023)	0	831	95
EAPC (2023)	0	874	99
Project-Only	0	4	1
Ambient-Only	0	39	3

I-10 EB Ramps

Eastbound

	left	through	right
Existing (2020)	56	1	702
EAP (2023)	319	1	745
Existing + Cumulative (2023)	56	1	876
EAPC (2023)	319	1	919
Project-Only	260	0	0
Ambient-Only	3	0	43

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Westbound

	right	through	left
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

Northbound

	left	through	right
Existing (2020)	0	860	789
EAP (2023)	0	1,015	837
Existing + Cumulative (2023)	0	1,055	896
EAPC (2023)	0	1,210	944
Project-Only	0	102	0
Ambient-Only	0	53	48

ADT

Road	Cook Street		I-10 EB Ramps	
Leg	North of	South of	East of	West of
Cross Street	I-10 EB Ramps		Cook Street	
Existing (2020)	12,784.0	23,856.0	6,728.0	6,072.0
EAP (2023)	16,504.0	26,168.0	7,144.0	8,520.0
Existing + Cumulative (2023)	16,296.0	29,264.0	7,936.0	7,464.0
EAPC (2023)	20,016.0	31,576.0	8,352.0	9,912.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o I-10 EB Ramps											
Existing (2020)		5	0	12,784	50	50	0	0	1.8%	0.7%	68.5
EAP (2023)		5	0	16,504	50	50	0	0	1.8%	0.7%	69.6
Existing + Cumulative (2023)		5	0	16,296	50	50	0	0	1.8%	0.7%	69.6
EAPC (2023)		5	0	20,016	50	50	0	0	1.8%	0.7%	70.5
Cook Street s/o I-10 EB Ramps											
Existing (2020)		6	13	23,856	50	50	0	0	1.8%	0.7%	72.3
EAP (2023)		6	13	26,168	50	50	0	0	1.8%	0.7%	72.7
Existing + Cumulative (2023)		6	13	29,264	50	50	0	0	1.8%	0.7%	73.2
EAPC (2023)		6	13	31,576	50	50	0	0	1.8%	0.7%	73.5
I-10 EB Ramps e/o Cook Street											
Existing (2020)		1	0	6,728	70	50	0	0	1.8%	0.7%	68.9
EAP (2023)		1	0	7,144	70	50	0	0	1.8%	0.7%	69.2
Existing + Cumulative (2023)		1	0	7,936	70	50	0	0	1.8%	0.7%	69.6
EAPC (2023)		1	0	8,352	70	50	0	0	1.8%	0.7%	69.9
I-10 EB Ramps w/o Cook Street											
Existing (2020)		2	0	6,072	70	50	0	0	1.8%	0.7%	68.5
EAP (2023)		2	0	8,520	70	50	0	0	1.8%	0.7%	70.0
Existing + Cumulative (2023)		2	0	7,464	70	50	0	0	1.8%	0.7%	69.4
EAPC (2023)		2	0	9,912	70	50	0	0	1.8%	0.7%	70.6

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Cook Street n/o I-10 EB Ramps																									
Existing (2020)	9,933	1,624	1,227	201	80	12	3	17	7	71.1	78.8	83.0	0.5	68.4	59.2	59.4	69.3	65.4	51.7	49.3	65.7	52.2	49.8	50.2	55.6
EAP (2023)	####	2,096	1,584	260	103	15	3	22	9	71.1	78.8	83.0	0.5	69.5	60.3	60.6	70.5	66.5	52.8	50.4	66.8	53.3	50.9	51.3	56.7
Existing + Cumulative (2023)	####	2,070	1,564	256	102	15	3	22	9	71.1	78.8	83.0	0.5	69.4	60.3	60.5	70.4	66.4	52.7	50.3	66.7	53.3	50.8	51.3	56.7
EAPC (2023)	####	2,542	1,922	315	125	18	4	27	11	71.1	78.8	83.0	0.5	70.3	61.2	61.4	71.3	67.3	53.6	51.2	67.6	54.1	51.7	52.2	57.6
Cook Street s/o I-10 EB Ramps																									
Existing (2020)	####	3,030	2,290	375	149	22	5	32	13	71.1	78.8	83.0	1.6	72.2	63.0	63.2	73.1	69.2	55.4	53.1	69.5	56.0	53.6	54.0	59.4
EAP (2023)	####	3,323	2,512	412	163	24	5	35	15	71.1	78.8	83.0	1.6	72.6	63.4	63.6	73.5	69.6	55.8	53.5	69.9	56.4	54.0	54.4	59.8
Existing + Cumulative (2023)	####	3,717	2,809	461	183	27	6	40	17	71.1	78.8	83.0	1.6	73.1	63.9	64.1	74.0	70.1	56.3	54.0	70.4	56.9	54.5	54.9	60.3
EAPC (2023)	####	4,010	3,031	497	197	29	6	43	18	71.1	78.8	83.0	1.6	73.4	64.2	64.5	74.4	70.4	56.7	54.3	70.7	57.2	54.8	55.2	60.6
I-10 EB Ramps e/o Cook Street																									
Existing (2020)	5,228	854	646	106	42	6	1	9	4	76.8	82.5	85.8	-0.1	69.2	58.2	57.4	69.8	66.2	50.6	47.3	66.4	53.0	48.7	48.2	55.3
EAP (2023)	5,551	907	686	112	45	6	1	10	4	76.8	82.5	85.8	-0.1	69.5	58.4	57.7	70.1	66.5	50.8	47.5	66.7	53.3	49.0	48.5	55.6
Existing + Cumulative (2023)	6,166	1,008	762	125	49	7	2	11	4	76.8	82.5	85.8	-0.1	69.9	58.9	58.1	70.5	67.0	51.3	48.0	67.1	53.8	49.4	48.9	56.1
EAPC (2023)	6,490	1,061	802	131	52	8	2	11	5	76.8	82.5	85.8	-0.1	70.2	59.1	58.4	70.7	67.2	51.5	48.2	67.4	54.0	49.6	49.1	56.3
I-10 EB Ramps w/o Cook Street																									
Existing (2020)	4,718	771	583	96	38	6	1	8	3	76.8	82.5	85.8	0.0	68.8	57.7	57.0	69.4	65.8	50.2	46.9	66.0	52.6	48.3	47.8	54.9
EAP (2023)	6,620	1,082	818	134	53	8	2	12	5	76.8	82.5	85.8	0.0	70.3	59.2	58.5	70.9	67.3	51.6	48.3	67.5	54.1	49.8	49.3	56.4
Existing + Cumulative (2023)	5,800	948	717	117	47	7	1	10	4	76.8	82.5	85.8	0.0	69.7	58.6	57.9	70.3	66.7	51.1	47.7	66.9	53.5	49.2	48.7	55.8
EAPC (2023)	7,702	1,259	952	156	62	9	2	13	6	76.8	82.5	85.8	0.0	70.9	59.9	59.1	71.5	68.0	52.3	49.0	68.1	54.8	50.4	49.9	57.1

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 7
Cook Street & Gerald Ford Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	212	708	169
EAP (2023)	226	754	179
Existing + Cumulative (2023)	406	884	173
EAPC (2023)	420	930	183
Project-Only	1	3	0
Ambient-Only	13	43	10

Gerald Ford Drive

Eastbound

	left	through	right
Existing (2020)	422	221	112
EAP (2023)	472	235	119
Existing + Cumulative (2023)	553	297	292
EAPC (2023)	603	311	299
Project-Only	24	0	0
Ambient-Only	26	14	7

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Westbound

	right	through	left
Existing (2020)	207	155	49
EAP (2023)	220	164	52
Existing + Cumulative (2023)	214	248	49
EAPC (2023)	227	257	52
Project-Only	0	0	0
Ambient-Only	13	9	3

Northbound

	left	through	right
Existing (2020)	167	982	30
EAP (2023)	177	1,120	32
Existing + Cumulative (2023)	426	1,146	30
EAPC (2023)	436	1,284	32
Project-Only	0	78	0
Ambient-Only	10	60	2

ADT

Road	Cook Street		Gerald Ford Drive	
Leg	North of	South of	East of	West of
Cross Street	Gerald Ford Drive		Cook Street	
Existing (2020)	21,600.0	16,384.0	6,648.0	10,312.0
EAP (2023)	23,768.0	18,032.0	7,056.0	11,144.0
Existing + Cumulative (2023)	27,008.0	22,616.0	8,088.0	17,776.0
EAPC (2023)	29,176.0	24,264.0	8,496.0	18,608.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center tc Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o Gerald Ford Drive											
Existing (2020)		6	25	21,600	50	50	0	0	1.8%	0.7%	73.0
EAP (2023)		6	25	23,768	50	50	0	0	1.8%	0.7%	73.4
Existing + Cumulative (2023)		6	25	27,008	50	50	0	0	1.8%	0.7%	74.0
EAPC (2023)		6	25	29,176	50	50	0	0	1.8%	0.7%	74.3
Cook Street s/o Gerald Ford Drive											
Existing (2020)		6	30	16,384	50	50	0	0	1.8%	0.7%	72.7
EAP (2023)		6	30	18,032	50	50	0	0	1.8%	0.7%	73.1
Existing + Cumulative (2023)		6	30	22,616	50	50	0	0	1.8%	0.7%	74.1
EAPC (2023)		6	30	24,264	50	50	0	0	1.8%	0.7%	74.4
Gerald Ford Drive e/o Cook Street											
Existing (2020)		3	20	6,648	55	50	0	0	1.8%	0.7%	66.6
EAP (2023)		3	20	7,056	55	50	0	0	1.8%	0.7%	66.9
Existing + Cumulative (2023)		3	20	8,088	55	50	0	0	1.8%	0.7%	67.5
EAPC (2023)		3	20	8,496	55	50	0	0	1.8%	0.7%	67.7
Gerald Ford Drive w/o Cook Street											
Existing (2020)		6	15	10,312	55	50	0	0	1.8%	0.7%	69.9
EAP (2023)		6	15	11,144	55	50	0	0	1.8%	0.7%	70.2
Existing + Cumulative (2023)		6	15	17,776	55	50	0	0	1.8%	0.7%	72.2
EAPC (2023)		6	15	18,608	55	50	0	0	1.8%	0.7%	72.4

Segment	Traffic Volumes									Ref. Energy Levels			Dist	Ld				Le				Ln			
	Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total
Cook Street n/o Gerald Ford Drive																									
Existing (2020)	####	2,743	2,074	340	135	20	4	29	12	71.1	78.8	83.0	2.7	72.9	63.7	63.9	73.8	69.9	56.1	53.8	70.2	56.7	54.3	54.7	60.1
EAP (2023)	####	3,019	2,282	374	148	22	5	32	13	71.1	78.8	83.0	2.7	73.3	64.1	64.4	74.3	70.3	56.6	54.2	70.6	57.1	54.7	55.1	60.5
Existing + Cumulative (2023)	####	3,430	2,593	425	168	25	5	37	15	71.1	78.8	83.0	2.7	73.8	64.7	64.9	74.8	70.9	57.1	54.7	71.1	57.7	55.2	55.7	61.1
EAPC (2023)	####	3,705	2,801	459	182	27	6	39	16	71.1	78.8	83.0	2.7	74.2	65.0	65.2	75.1	71.2	57.5	55.1	71.5	58.0	55.6	56.0	61.4
Cook Street s/o Gerald Ford Drive																									
Existing (2020)	####	2,081	1,573	258	102	15	3	22	9	71.1	78.8	83.0	3.5	72.5	63.4	63.6	73.5	69.5	55.8	53.4	69.8	56.3	53.9	54.3	59.8
EAP (2023)	####	2,290	1,731	284	112	16	4	24	10	71.1	78.8	83.0	3.5	72.9	63.8	64.0	73.9	69.9	56.2	53.8	70.2	56.7	54.3	54.7	60.2
Existing + Cumulative (2023)	####	2,872	2,171	356	141	21	4	31	13	71.1	78.8	83.0	3.5	73.9	64.8	65.0	74.9	70.9	57.2	54.8	71.2	57.7	55.3	55.7	61.2
EAPC (2023)	####	3,082	2,329	382	151	22	5	33	14	71.1	78.8	83.0	3.5	74.2	65.1	65.3	75.2	71.2	57.5	55.1	71.5	58.0	55.6	56.0	61.5
Gerald Ford Drive e/o Cook Street																									
Existing (2020)	5,165	844	638	105	41	6	1	9	4	72.7	79.9	83.8	0.4	66.6	56.9	56.9	67.5	63.6	49.4	46.7	63.9	50.4	47.5	47.6	53.5
EAP (2023)	5,483	896	677	111	44	6	1	10	4	72.7	79.9	83.8	0.4	66.9	57.2	57.1	67.7	63.9	49.6	47.0	64.1	50.7	47.7	47.9	53.8
Existing + Cumulative (2023)	6,284	1,027	776	127	50	7	2	11	5	72.7	79.9	83.8	0.4	67.5	57.8	57.7	68.3	64.5	50.2	47.6	64.7	51.3	48.3	48.5	54.4
EAPC (2023)	6,601	1,079	816	134	53	8	2	12	5	72.7	79.9	83.8	0.4	67.7	58.0	57.9	68.5	64.7	50.4	47.8	65.0	51.5	48.6	48.7	54.6
Gerald Ford Drive w/o Cook Street																									
Existing (2020)	8,012	1,310	990	162	64	9	2	14	6	72.7	79.9	83.8	1.7	69.9	60.2	60.1	70.7	66.9	52.6	50.0	67.1	53.7	50.7	50.9	56.8
EAP (2023)	8,659	1,415	1,070	175	70	10	2	15	6	72.7	79.9	83.8	1.7	70.2	60.5	60.5	71.0	67.2	52.9	50.3	67.5	54.0	51.1	51.2	57.1
Existing + Cumulative (2023)	####	2,258	1,706	280	111	16	4	24	10	72.7	79.9	83.8	1.7	72.2	62.5	62.5	73.1	69.2	55.0	52.3	69.5	56.1	53.1	53.2	59.1
EAPC (2023)	####	2,363	1,786	293	116	17	4	25	10	72.7	79.9	83.8	1.7	72.4	62.7	62.7	73.3	69.4	55.2	52.5	69.7	56.2	53.3	53.4	59.3

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 8
Cook Street & Frank Sinatra Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	201	630	69
EAP (2023)	214	671	73
Existing + Cumulative (2023)	232	914	71
EAPC (2023)	245	955	75
Project-Only	1	2	0
Ambient-Only	12	39	4

Frank Sinatra Drive

Eastbound

	left	through	right
Existing (2020)	253	265	193
EAP (2023)	283	281	205
Existing + Cumulative (2023)	302	265	200
EAPC (2023)	332	281	212
Project-Only	15	0	0
Ambient-Only	15	16	12

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Westbound

	right	through	left
Existing (2020)	84	155	42
EAP (2023)	92	164	45
Existing + Cumulative (2023)	88	155	47
EAPC (2023)	96	164	50
Project-Only	3	0	0
Ambient-Only	5	9	3

Northbound

	left	through	right
Existing (2020)	123	803	83
EAP (2023)	131	912	88
Existing + Cumulative (2023)	129	1,206	88
EAPC (2023)	137	1,315	93
Project-Only	0	60	0
Ambient-Only	8	49	5

ADT

Road	Cook Street		Frank Sinatra Drive	
Leg	North of	South of	East of	West of
Cross Street	Frank Sinatra Drive		Cook Street	
Existing (2020)	16,320.0	14,992.0	5,584.0	9,520.0
EAP (2023)	17,960.0	16,416.0	5,944.0	10,224.0
Existing + Cumulative (2023)	22,504.0	20,672.0	5,712.0	10,264.0
EAPC (2023)	24,144.0	22,096.0	6,072.0	10,968.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o Frank Sinatra Drive											
Existing (2020)		6	25	16,320	50	50	0	0	1.8%	0.7%	71.8
EAP (2023)		6	25	17,960	50	50	0	0	1.8%	0.7%	72.2
Existing + Cumulative (2023)		6	25	22,504	50	50	0	0	1.8%	0.7%	73.2
EAPC (2023)		6	25	24,144	50	50	0	0	1.8%	0.7%	73.5
Cook Street s/o Frank Sinatra Drive											
Existing (2020)		4	20	14,992	50	50	0	0	1.8%	0.7%	69.5
EAP (2023)		4	20	16,416	50	50	0	0	1.8%	0.7%	69.9
Existing + Cumulative (2023)		4	20	20,672	50	50	0	0	1.8%	0.7%	70.9
EAPC (2023)		4	20	22,096	50	50	0	0	1.8%	0.7%	71.2
Frank Sinatra Drive e/o Cook Street											
Existing (2020)		4	20	5,584	55	50	0	0	1.8%	0.7%	66.2
EAP (2023)		4	20	5,944	55	50	0	0	1.8%	0.7%	66.5
Existing + Cumulative (2023)		4	20	5,712	55	50	0	0	1.8%	0.7%	66.3
EAPC (2023)		4	20	6,072	55	50	0	0	1.8%	0.7%	66.6
Frank Sinatra Drive w/o Cook Street											
Existing (2020)		4	20	9,520	55	50	0	0	1.8%	0.7%	68.5
EAP (2023)		4	20	10,224	55	50	0	0	1.8%	0.7%	68.8
Existing + Cumulative (2023)		4	20	10,264	55	50	0	0	1.8%	0.7%	68.9
EAPC (2023)		4	20	10,968	55	50	0	0	1.8%	0.7%	69.2

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Cook Street n/o Frank Sinatra Drive																									
Existing (2020)	####	2,073	1,567	257	102	15	3	22	9	71.1	78.8	83.0	2.7	71.7	62.5	62.7	72.6	68.7	54.9	52.6	69.0	55.5	53.1	53.5	58.9
EAP (2023)	####	2,281	1,724	283	112	16	4	24	10	71.1	78.8	83.0	2.7	72.1	62.9	63.1	73.0	69.1	55.3	53.0	69.4	55.9	53.5	53.9	59.3
Existing + Cumulative (2023)	####	2,858	2,160	354	140	20	4	30	13	71.1	78.8	83.0	2.7	73.0	63.9	64.1	74.0	70.1	56.3	54.0	70.3	56.9	54.5	54.9	60.3
EAPC (2023)	####	3,066	2,318	380	151	22	5	33	14	71.1	78.8	83.0	2.7	73.4	64.2	64.4	74.3	70.4	56.6	54.3	70.7	57.2	54.8	55.2	60.6
Cook Street s/o Frank Sinatra Drive																									
Existing (2020)	####	1,904	1,439	236	94	14	3	20	8	71.1	78.8	83.0	0.7	69.3	60.2	60.4	70.3	66.3	52.6	50.2	66.6	53.1	50.7	51.1	56.6
EAP (2023)	####	2,085	1,576	258	102	15	3	22	9	71.1	78.8	83.0	0.7	69.7	60.6	60.8	70.7	66.7	53.0	50.6	67.0	53.5	51.1	51.5	57.0
Existing + Cumulative (2023)	####	2,625	1,985	325	129	19	4	28	12	71.1	78.8	83.0	0.7	70.7	61.6	61.8	71.7	67.7	54.0	51.6	68.0	54.5	52.1	52.5	58.0
EAPC (2023)	####	2,806	2,121	348	138	20	4	30	12	71.1	78.8	83.0	0.7	71.0	61.9	62.1	72.0	68.0	54.3	51.9	68.3	54.8	52.4	52.8	58.3
Frank Sinatra Drive e/o Cook Street																									
Existing (2020)	4,339	709	536	88	35	5	1	8	3	72.7	79.9	83.8	0.7	66.2	56.5	56.5	67.1	63.2	48.9	46.3	63.5	50.0	47.1	47.2	53.1
EAP (2023)	4,618	755	571	94	37	5	1	8	3	72.7	79.9	83.8	0.7	66.5	56.8	56.7	67.3	63.5	49.2	46.6	63.8	50.3	47.3	47.5	53.4
Existing + Cumulative (2023)	4,438	725	548	90	36	5	1	8	3	72.7	79.9	83.8	0.7	66.3	56.6	56.6	67.2	63.3	49.0	46.4	63.6	50.1	47.2	47.3	53.2
EAPC (2023)	4,718	771	583	96	38	6	1	8	3	72.7	79.9	83.8	0.7	66.6	56.9	56.8	67.4	63.6	49.3	46.7	63.8	50.4	47.4	47.6	53.5
Frank Sinatra Drive w/o Cook Street																									
Existing (2020)	7,397	1,209	914	150	59	9	2	13	5	72.7	79.9	83.8	0.7	68.5	58.8	58.8	69.4	65.6	51.3	48.6	65.8	52.4	49.4	49.6	55.4
EAP (2023)	7,944	1,298	982	161	64	9	2	14	6	72.7	79.9	83.8	0.7	68.8	59.2	59.1	69.7	65.9	51.6	48.9	66.1	52.7	49.7	49.9	55.7
Existing + Cumulative (2023)	7,975	1,304	985	162	64	9	2	14	6	72.7	79.9	83.8	0.7	68.9	59.2	59.1	69.7	65.9	51.6	49.0	66.1	52.7	49.7	49.9	55.8
EAPC (2023)	8,522	1,393	1,053	173	68	10	2	15	6	72.7	79.9	83.8	0.7	69.1	59.5	59.4	70.0	66.2	51.9	49.2	66.4	53.0	50.0	50.2	56.0

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 9
Cook Street & Country Club Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Cook Street

Southbound

	right	through	left
Existing (2020)	192	617	204
EAP (2023)	204	657	216
Existing + Cumulative (2023)	211	839	241
EAPC (2023)	223	879	253
Project-Only	0	2	0
Ambient-Only	12	38	12

Country Club Drive

Eastbound

	left	through	right
Existing (2020)	139	604	281
EAP (2023)	160	641	298
Existing + Cumulative (2023)	163	710	285
EAPC (2023)	184	747	302
Project-Only	12	0	0
Ambient-Only	9	37	17

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Westbound

	right	through	left
Existing (2020)	160	383	133
EAP (2023)	176	406	141
Existing + Cumulative (2023)	217	492	144
EAPC (2023)	233	515	152
Project-Only	6	0	0
Ambient-Only	10	23	8

Northbound

	left	through	right
Existing (2020)	218	787	208
EAP (2023)	231	877	221
Existing + Cumulative (2023)	221	1,091	216
EAPC (2023)	234	1,181	229
Project-Only	0	42	0
Ambient-Only	13	48	13

ADT

Road	Cook Street		Country Club Drive	
Leg	North of	South of	East of	West of
Cross Street	Country Club Drive		Cook Street	
Existing (2020)	16,792.0	17,952.0	13,536.0	14,536.0
EAP (2023)	18,320.0	19,400.0	14,408.0	15,520.0
Existing + Cumulative (2023)	22,096.0	22,368.0	16,160.0	16,656.0
EAPC (2023)	23,624.0	23,816.0	17,032.0	17,640.0

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NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center tc Receptor	Alpha Factor (1	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Cook Street n/o Country Club Drive											
Existing (2020)		5	20	16,792	50	50	0	0	1.8%	0.7%	70.5
EAP (2023)		5	20	18,320	50	50	0	0	1.8%	0.7%	70.9
Existing + Cumulative (2023)		5	20	22,096	50	50	0	0	1.8%	0.7%	71.7
EAPC (2023)		5	20	23,624	50	50	0	0	1.8%	0.7%	72.0
Cook Street s/o Country Club Drive											
Existing (2020)		4	20	17,952	50	50	0	0	1.8%	0.7%	70.3
EAP (2023)		4	20	19,400	50	50	0	0	1.8%	0.7%	70.6
Existing + Cumulative (2023)		4	20	22,368	50	50	0	0	1.8%	0.7%	71.2
EAPC (2023)		4	20	23,816	50	50	0	0	1.8%	0.7%	71.5
Country Club Drive e/o Cook Street											
Existing (2020)		4	20	13,536	50	50	0	0	1.8%	0.7%	69.0
EAP (2023)		4	20	14,408	50	50	0	0	1.8%	0.7%	69.3
Existing + Cumulative (2023)		4	20	16,160	50	50	0	0	1.8%	0.7%	69.8
EAPC (2023)		4	20	17,032	50	50	0	0	1.8%	0.7%	70.0
Country Club Drive w/o Cook Street											
Existing (2020)		4	20	14,536	50	50	0	0	1.8%	0.7%	69.3
EAP (2023)		4	20	15,520	50	50	0	0	1.8%	0.7%	69.6
Existing + Cumulative (2023)		4	20	16,656	50	50	0	0	1.8%	0.7%	69.9
EAPC (2023)		4	20	17,640	50	50	0	0	1.8%	0.7%	70.2

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Cook Street n/o Country Club Drive																									
Existing (2020)	####	2,133	1,612	264	105	15	3	23	9	71.1	78.8	83.0	1.3	70.3	61.2	61.4	71.3	67.4	53.6	51.2	67.6	54.2	51.7	52.2	57.6
EAP (2023)	####	2,327	1,759	288	114	17	4	25	10	71.1	78.8	83.0	1.3	70.7	61.6	61.8	71.7	67.7	54.0	51.6	68.0	54.5	52.1	52.5	58.0
Existing + Cumulative (2023)	####	2,806	2,121	348	138	20	4	30	12	71.1	78.8	83.0	1.3	71.5	62.4	62.6	72.5	68.5	54.8	52.4	68.8	55.4	52.9	53.4	58.8
EAPC (2023)	####	3,000	2,268	372	147	21	5	32	13	71.1	78.8	83.0	1.3	71.8	62.7	62.9	72.8	68.8	55.1	52.7	69.1	55.6	53.2	53.7	59.1
Cook Street s/o Country Club Drive																									
Existing (2020)	####	2,280	1,723	283	112	16	4	24	10	71.1	78.8	83.0	0.7	70.1	61.0	61.2	71.1	67.1	53.4	51.0	67.4	53.9	51.5	51.9	57.4
EAP (2023)	####	2,464	1,862	305	121	18	4	26	11	71.1	78.8	83.0	0.7	70.4	61.3	61.5	71.4	67.5	53.7	51.3	67.7	54.3	51.8	52.3	57.7
Existing + Cumulative (2023)	####	2,841	2,147	352	140	20	4	30	13	71.1	78.8	83.0	0.7	71.1	61.9	62.1	72.0	68.1	54.3	52.0	68.4	54.9	52.5	52.9	58.3
EAPC (2023)	####	3,025	2,286	375	149	22	5	32	13	71.1	78.8	83.0	0.7	71.3	62.2	62.4	72.3	68.3	54.6	52.2	68.6	55.1	52.7	53.2	58.6
Country Club Drive e/o Cook Street																									
Existing (2020)	####	1,719	1,299	213	84	12	3	18	8	71.1	78.8	83.0	0.7	68.9	59.7	59.9	69.8	65.9	52.1	49.8	66.2	52.7	50.3	50.7	56.1
EAP (2023)	####	1,830	1,383	227	90	13	3	20	8	71.1	78.8	83.0	0.7	69.1	60.0	60.2	70.1	66.2	52.4	50.0	66.4	53.0	50.5	51.0	56.4
Existing + Cumulative (2023)	####	2,052	1,551	254	101	15	3	22	9	71.1	78.8	83.0	0.7	69.6	60.5	60.7	70.6	66.7	52.9	50.5	66.9	53.5	51.0	51.5	56.9
EAPC (2023)	####	2,163	1,635	268	106	15	3	23	10	71.1	78.8	83.0	0.7	69.9	60.7	60.9	70.8	66.9	53.1	50.8	67.2	53.7	51.3	51.7	57.1
Country Club Drive w/o Cook Street																									
Existing (2020)	####	1,846	1,395	229	91	13	3	20	8	71.1	78.8	83.0	0.7	69.2	60.0	60.2	70.1	66.2	52.5	50.1	66.5	53.0	50.6	51.0	56.4
EAP (2023)	####	1,971	1,490	244	97	14	3	21	9	71.1	78.8	83.0	0.7	69.5	60.3	60.5	70.4	66.5	52.7	50.4	66.8	53.3	50.9	51.3	56.7
Existing + Cumulative (2023)	####	2,115	1,599	262	104	15	3	23	9	71.1	78.8	83.0	0.7	69.8	60.6	60.8	70.7	66.8	53.0	50.7	67.1	53.6	51.2	51.6	57.0
EAPC (2023)	####	2,240	1,693	278	110	16	4	24	10	71.1	78.8	83.0	0.7	70.0	60.9	61.1	71.0	67.0	53.3	50.9	67.3	53.8	51.4	51.9	57.3

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 10
Varner Road & Classic Country Club Blvd

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Varner Road

Southbound

	right	through	left
Existing (2020)	0	238	4
EAP (2023)	0	668	4
Existing + Cumulative (2023)	0	242	4
EAPC (2023)	0	672	4
Project-Only	0	415	0
Ambient-Only	0	15	0

Classic Country Club Blvd

Eastbound

	left	through	right
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

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Westbound

	right	through	left
Existing (2020)	4	0	4
EAP (2023)	4	0	4
Existing + Cumulative (2023)	4	0	4
EAPC (2023)	4	0	4
Project-Only	0	0	0
Ambient-Only	0	0	0

Northbound

	left	through	right
Existing (2020)	0	544	5
EAP (2023)	0	600	5
Existing + Cumulative (2023)	0	552	5
EAPC (2023)	0	608	5
Project-Only	0	23	0
Ambient-Only	0	33	0

ADT

Road	Varner Road		Classic Country Club Blvd	
Leg	North of	South of	East of	West of
Cross Street	Classic Country Club Blvd		Varner Road	
Existing (2020)	6,320.0	6,328.0	136.0	0.0
EAP (2023)	10,208.0	10,216.0	136.0	0.0
Existing + Cumulative (2023)	6,416.0	6,424.0	136.0	0.0
EAPC (2023)	10,304.0	10,312.0	136.0	0.0

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NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME / Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Varner Road n/o Classic Country Club Blvd																																				
Existing (2020)		4	13	6,320	45	50	0	0	1.8%	0.7%	64.4	4,911	803	607	99	39	6	1	9	4	69.3	77.6	82.1	0.5	64.0	55.5	56.0	65.2	61.0	47.9	45.8	61.4	47.8	46.0	46.8	51.7
EAP (2023)		4	13	10,208	45	50	0	0	1.8%	0.7%	66.5	7,932	1,296	980	161	64	9	2	14	6	69.3	77.6	82.1	0.5	66.1	57.6	58.1	67.2	63.1	50.0	47.9	63.5	49.9	48.1	48.8	53.8
Existing + Cumulative (2023)		4	13	6,416	45	50	0	0	1.8%	0.7%	64.4	4,985	815	616	101	40	6	1	9	4	69.3	77.6	82.1	0.5	64.1	55.6	56.1	65.2	61.1	48.0	45.9	61.4	47.9	46.1	46.8	51.8
EAPC (2023)		4	13	10,304	45	50	0	0	1.8%	0.7%	66.5	8,006	1,309	989	162	64	9	2	14	6	69.3	77.6	82.1	0.5	66.1	57.6	58.1	67.3	63.2	50.0	47.9	63.5	50.0	48.2	48.9	53.8
Varner Road s/o Classic Country Club Blvd																																				
Existing (2020)		6	13	6,328	45	50	0	0	1.8%	0.7%	65.4	4,917	804	607	100	39	6	1	9	4	69.3	77.6	82.1	1.6	65.1	56.6	57.1	66.2	62.1	49.0	46.9	62.4	48.9	47.1	47.8	52.8
EAP (2023)		6	13	10,216	45	50	0	0	1.8%	0.7%	67.5	7,938	1,297	981	161	64	9	2	14	6	69.3	77.6	82.1	1.6	67.2	58.6	59.1	68.3	64.2	51.1	49.0	64.5	51.0	49.2	49.9	54.9
Existing + Cumulative (2023)		6	13	6,424	45	50	0	0	1.8%	0.7%	65.5	4,991	816	617	101	40	6	1	9	4	69.3	77.6	82.1	1.6	65.2	56.6	57.1	66.3	62.2	49.0	47.0	62.5	49.0	47.2	47.9	52.8
EAPC (2023)		6	13	10,312	45	50	0	0	1.8%	0.7%	67.6	8,012	1,310	990	162	64	9	2	14	6	69.3	77.6	82.1	1.6	67.2	58.7	59.2	68.3	64.2	51.1	49.0	64.6	51.0	49.2	49.9	54.9
Classic Country Club Blvd e/o Varner Road																																				
Existing (2020)		4	10	136	35	50	0	0	1.8%	0.7%	45.1	106	17	13	2	1	0	0	0	0	65.1	74.8	80.0	0.4	44.1	37.0	38.2	45.7	41.1	29.5	28.1	41.6	28.0	27.6	29.0	33.0
EAP (2023)		4	10	136	35	50	0	0	1.8%	0.7%	45.1	106	17	13	2	1	0	0	0	0	65.1	74.8	80.0	0.4	44.1	37.0	38.2	45.7	41.1	29.5	28.1	41.6	28.0	27.6	29.0	33.0
Existing + Cumulative (2023)		4	10	136	35	50	0	0	1.8%	0.7%	45.1	106	17	13	2	1	0	0	0	0	65.1	74.8	80.0	0.4	44.1	37.0	38.2	45.7	41.1	29.5	28.1	41.6	28.0	27.6	29.0	33.0
EAPC (2023)		4	10	136	35	50	0	0	1.8%	0.7%	45.1	106	17	13	2	1	0	0	0	0	65.1	74.8	80.0	0.4	44.1	37.0	38.2	45.7	41.1	29.5	28.1	41.6	28.0	27.6	29.0	33.0
Classic Country Club Blvd w/o Varner Road																																				
Existing (2020)		0	0	0	35	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	65.1	74.8	80.0	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAP (2023)		0	0	0	35	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	65.1	74.8	80.0	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Existing + Cumulative (2023)		0	0	0	35	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	65.1	74.8	80.0	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAPC (2023)		0	0	0	35	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	65.1	74.8	80.0	0.0	####	####	####	####	####	####	####	####	####	####	####	####

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 11
Varner Road & Avenue 38

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Varner Road

Southbound

	right	through	left
Existing (2020)	0	212	16
EAP (2023)	0	234	17
Existing + Cumulative (2023)	0	216	16
EAPC (2023)	0	238	17
Project-Only	0	9	0
Ambient-Only	0	13	1

Avenue 38

Eastbound

	left	through	right
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

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Westbound

	right	through	left
Existing (2020)	33	0	0
EAP (2023)	35	0	0
Existing + Cumulative (2023)	33	0	0
EAPC (2023)	35	0	0
Project-Only	0	0	0
Ambient-Only	2	0	0

Northbound

	left	through	right
Existing (2020)	0	486	1
EAP (2023)	0	694	1
Existing + Cumulative (2023)	0	494	1
EAPC (2023)	0	702	1
Project-Only	0	178	0
Ambient-Only	0	30	0

ADT

Road	Varner Road		Avenue 38	
Leg	North of	South of	East of	West of
Cross Street	Avenue 38		Varner Road	
Existing (2020)	5,976.0	5,592.0	400.0	0.0
EAP (2023)	7,840.0	7,432.0	424.0	0.0
Existing + Cumulative (2023)	6,072.0	5,688.0	400.0	0.0
EAPC (2023)	7,936.0	7,528.0	424.0	0.0

2
NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center tc Receptor	Alpha Factor (1	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Varner Road n/o Avenue 38																																				
Existing (2020)		5	22	5,976	45	50	0	0	1.8%	0.7%	65.0	4,643	759	574	94	37	5	1	8	3	69.3	77.6	82.1	1.4	64.6	56.1	56.6	65.8	61.7	48.5	46.4	62.0	48.5	46.7	47.4	52.3
EAP (2023)		5	22	7,840	45	50	0	0	1.8%	0.7%	66.2	6,092	996	753	123	49	7	2	11	4	69.3	77.6	82.1	1.4	65.8	57.3	57.8	67.0	62.8	49.7	47.6	63.2	49.7	47.8	48.6	53.5
Existing + Cumulative (2023)		5	22	6,072	45	50	0	0	1.8%	0.7%	65.1	4,718	771	583	96	38	6	1	8	3	69.3	77.6	82.1	1.4	64.7	56.2	56.7	65.8	61.7	48.6	46.5	62.1	48.5	46.7	47.4	52.4
EAPC (2023)		5	22	7,936	45	50	0	0	1.8%	0.7%	66.2	6,166	1,008	762	125	49	7	2	11	4	69.3	77.6	82.1	1.4	65.9	57.3	57.8	67.0	62.9	49.8	47.7	63.2	49.7	47.9	48.6	53.6
Varner Road s/o Avenue 38																																				
Existing (2020)		2	0	5,592	45	50	0	0	1.8%	0.7%	63.3	4,345	710	537	88	35	5	1	8	3	69.3	77.6	82.1	0.0	62.9	54.4	54.9	64.1	59.9	46.8	44.7	60.3	46.8	44.9	45.7	50.6
EAP (2023)		2	0	7,432	45	50	0	0	1.8%	0.7%	64.5	5,775	944	713	117	46	7	1	10	4	69.3	77.6	82.1	0.0	64.2	55.6	56.1	65.3	61.2	48.0	46.0	61.5	48.0	46.2	46.9	51.9
Existing + Cumulative (2023)		2	0	5,688	45	50	0	0	1.8%	0.7%	63.3	4,420	722	546	90	35	5	1	8	3	69.3	77.6	82.1	0.0	63.0	54.5	55.0	64.1	60.0	46.9	44.8	60.3	46.8	45.0	45.7	50.7
EAPC (2023)		2	0	7,528	45	50	0	0	1.8%	0.7%	64.6	5,849	956	723	118	47	7	1	10	4	69.3	77.6	82.1	0.0	64.2	55.7	56.2	65.3	61.2	48.1	46.0	61.6	48.0	46.2	46.9	51.9
Avenue 38 e/o Varner Road																																				
Existing (2020)		2	0	400	45	50	0	0	1.8%	0.7%	51.8	311	51	38	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.5	42.9	43.4	52.6	48.5	35.4	33.3	48.8	35.3	33.5	34.2	39.2
EAP (2023)		2	0	424	45	50	0	0	1.8%	0.7%	52.1	329	54	41	7	3	0	0	1	0	69.3	77.6	82.1	0.0	51.7	43.2	43.7	52.9	48.7	35.6	33.5	49.1	35.5	33.7	34.5	39.4
Existing + Cumulative (2023)		2	0	400	45	50	0	0	1.8%	0.7%	51.8	311	51	38	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.5	42.9	43.4	52.6	48.5	35.4	33.3	48.8	35.3	33.5	34.2	39.2
EAPC (2023)		2	0	424	45	50	0	0	1.8%	0.7%	52.1	329	54	41	7	3	0	0	1	0	69.3	77.6	82.1	0.0	51.7	43.2	43.7	52.9	48.7	35.6	33.5	49.1	35.5	33.7	34.5	39.4
Avenue 38 w/o Varner Road																																				
Existing (2020)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAP (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Existing + Cumulative (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAPC (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena

rev. (Date)

PM Peak Hour

Intersection: 12

Varner Road & Berkey Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Berkey Drive

Southbound

	right	through	left
Existing (2020)	23	39	83
EAP (2023)	24	41	88
Existing + Cumulative (2023)	23	39	83
EAPC (2023)	24	41	88
Project-Only	0	0	0
Ambient-Only	1	2	5

Varner Road

Eastbound

	left	through	right
Existing (2020)	16	269	22
EAP (2023)	17	294	23
Existing + Cumulative (2023)	16	273	22
EAPC (2023)	17	298	23
Project-Only	0	9	0
Ambient-Only	1	16	1

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Westbound

	right	through	left
Existing (2020)	39	358	371
EAP (2023)	41	558	394
Existing + Cumulative (2023)	39	366	371
EAPC (2023)	41	566	394
Project-Only	0	178	0
Ambient-Only	2	22	23

Northbound

	left	through	right
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

ADT

Road	Berkey Drive		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		Berkey Drive	
Existing (2020)	1,600.0	3,456.0	8,960.0	5,504.0
EAP (2023)	1,688.0	3,664.0	11,000.0	7,328.0
Existing + Cumulative (2023)	1,600.0	3,456.0	9,056.0	5,600.0
EAPC (2023)	1,688.0	3,664.0	11,096.0	7,424.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Berkey Drive n/o Varner Road											
Existing (2020)		4	13	1,600	45	50	0	0	1.8%	0.7%	58.4
EAP (2023)		4	13	1,688	45	50	0	0	1.8%	0.7%	58.6
Existing + Cumulative (2023)		4	13	1,600	45	50	0	0	1.8%	0.7%	58.4
EAPC (2023)		4	13	1,688	45	50	0	0	1.8%	0.7%	58.6
Berkey Drive s/o Varner Road											
Existing (2020)		1	0	3,456	45	50	0	0	1.8%	0.7%	61.2
EAP (2023)		1	0	3,664	45	50	0	0	1.8%	0.7%	61.4
Existing + Cumulative (2023)		1	0	3,456	45	50	0	0	1.8%	0.7%	61.2
EAPC (2023)		1	0	3,664	45	50	0	0	1.8%	0.7%	61.4
Varner Road e/o Berkey Drive											
Existing (2020)		4	17	8,960	45	50	0	0	1.8%	0.7%	66.0
EAP (2023)		4	17	11,000	45	50	0	0	1.8%	0.7%	66.9
Existing + Cumulative (2023)		4	17	9,056	45	50	0	0	1.8%	0.7%	66.1
EAPC (2023)		4	17	11,096	45	50	0	0	1.8%	0.7%	66.9
Varner Road w/o Berkey Drive											
Existing (2020)		3	13	5,504	45	50	0	0	1.8%	0.7%	63.5
EAP (2023)		3	13	7,328	45	50	0	0	1.8%	0.7%	64.7
Existing + Cumulative (2023)		3	13	5,600	45	50	0	0	1.8%	0.7%	63.6
EAPC (2023)		3	13	7,424	45	50	0	0	1.8%	0.7%	64.8

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Berkey Drive n/o Varner Road																									
Existing (2020)	1,243	203	154	25	10	1	0	2	1	69.3	77.6	82.1	0.5	58.1	49.5	50.0	59.2	55.1	41.9	39.9	55.4	41.9	40.1	40.8	45.7
EAP (2023)	1,312	214	162	27	11	2	0	2	1	69.3	77.6	82.1	0.5	58.3	49.8	50.3	59.4	55.3	42.2	40.1	55.6	42.1	40.3	41.0	46.0
Existing + Cumulative (2023)	1,243	203	154	25	10	1	0	2	1	69.3	77.6	82.1	0.5	58.1	49.5	50.0	59.2	55.1	41.9	39.9	55.4	41.9	40.1	40.8	45.7
EAPC (2023)	1,312	214	162	27	11	2	0	2	1	69.3	77.6	82.1	0.5	58.3	49.8	50.3	59.4	55.3	42.2	40.1	55.6	42.1	40.3	41.0	46.0
Berkey Drive s/o Varner Road																									
Existing (2020)	2,685	439	332	54	22	3	1	5	2	69.3	77.6	82.1	-0.1	60.8	52.3	52.8	61.9	57.8	44.7	42.6	58.2	44.6	42.8	43.5	48.5
EAP (2023)	2,847	465	352	58	23	3	1	5	2	69.3	77.6	82.1	-0.1	61.1	52.5	53.0	62.2	58.1	44.9	42.9	58.4	44.9	43.1	43.8	48.8
Existing + Cumulative (2023)	2,685	439	332	54	22	3	1	5	2	69.3	77.6	82.1	-0.1	60.8	52.3	52.8	61.9	57.8	44.7	42.6	58.2	44.6	42.8	43.5	48.5
EAPC (2023)	2,847	465	352	58	23	3	1	5	2	69.3	77.6	82.1	-0.1	61.1	52.5	53.0	62.2	58.1	44.9	42.9	58.4	44.9	43.1	43.8	48.8
Varner Road e/o Berkey Drive																									
Existing (2020)	6,962	1,138	860	141	56	8	2	12	5	69.3	77.6	82.1	0.6	65.7	57.1	57.6	66.8	62.7	49.5	47.5	63.0	49.5	47.7	48.4	53.4
EAP (2023)	8,547	1,397	1,056	173	69	10	2	15	6	69.3	77.6	82.1	0.6	66.5	58.0	58.5	67.7	63.6	50.4	48.4	63.9	50.4	48.6	49.3	54.2
Existing + Cumulative (2023)	7,037	1,150	869	143	56	8	2	12	5	69.3	77.6	82.1	0.6	65.7	57.2	57.7	66.8	62.7	49.6	47.5	63.1	49.5	47.7	48.4	53.4
EAPC (2023)	8,622	1,409	1,065	175	69	10	2	15	6	69.3	77.6	82.1	0.6	66.6	58.1	58.6	67.7	63.6	50.5	48.4	63.9	50.4	48.6	49.3	54.3
Varner Road w/o Berkey Drive																									
Existing (2020)	4,277	699	528	87	34	5	1	7	3	69.3	77.6	82.1	0.3	63.1	54.6	55.1	64.3	60.2	47.0	44.9	60.5	47.0	45.2	45.9	50.8
EAP (2023)	5,694	931	703	115	46	7	1	10	4	69.3	77.6	82.1	0.3	64.4	55.9	56.4	65.5	61.4	48.3	46.2	61.7	48.2	46.4	47.1	52.1
Existing + Cumulative (2023)	4,351	711	538	88	35	5	1	8	3	69.3	77.6	82.1	0.3	63.2	54.7	55.2	64.4	60.2	47.1	45.0	60.6	47.0	45.2	46.0	50.9
EAPC (2023)	5,768	943	713	117	46	7	1	10	4	69.3	77.6	82.1	0.3	64.4	55.9	56.4	65.6	61.5	48.3	46.2	61.8	48.3	46.5	47.2	52.1

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 13
Washington Street & Avenue 38

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Washington Street

Southbound

	right	through	left
Existing (2020)	5	162	0
EAP (2023)	5	172	0
Existing + Cumulative (2023)	5	172	0
EAPC (2023)	5	182	0
Project-Only	0	0	0
Ambient-Only	0	10	0

Avenue 38

Eastbound

	left	through	right
Existing (2020)	11	0	7
EAP (2023)	12	0	7
Existing + Cumulative (2023)	11	0	7
EAPC (2023)	12	0	7
Project-Only	0	0	0
Ambient-Only	1	0	0

N
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Westbound

	right	through	left
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

Northbound

	left	through	right
Existing (2020)	24	354	0
EAP (2023)	25	376	0
Existing + Cumulative (2023)	24	364	0
EAPC (2023)	25	386	0
Project-Only	0	0	0
Ambient-Only	1	22	0

ADT

Road	Washington Street		Avenue 38	
Leg	North of	South of	East of	West of
Cross Street	Avenue 38		Washington Street	
Existing (2020)	4,256.0	4,376.0	0.0	376.0
EAP (2023)	4,520.0	4,640.0	0.0	392.0
Existing + Cumulative (2023)	4,416.0	4,536.0	0.0	376.0
EAPC (2023)	4,680.0	4,800.0	0.0	392.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Washington Street n/o Avenue 38											
Existing (2020)		4	23	4,256	55	50	0	0	1.8%	0.7%	65.2
EAP (2023)		4	23	4,520	55	50	0	0	1.8%	0.7%	65.4
Existing + Cumulative (2023)		4	23	4,416	55	50	0	0	1.8%	0.7%	65.3
EAPC (2023)		4	23	4,680	55	50	0	0	1.8%	0.7%	65.6
Washington Street s/o Avenue 38											
Existing (2020)		3	7	4,376	45	50	0	0	1.8%	0.7%	62.4
EAP (2023)		3	7	4,640	45	50	0	0	1.8%	0.7%	62.7
Existing + Cumulative (2023)		3	7	4,536	45	50	0	0	1.8%	0.7%	62.6
EAPC (2023)		3	7	4,800	45	50	0	0	1.8%	0.7%	62.8
Avenue 38 e/o Washington Street											
Existing (2020)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!
EAP (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!
Existing + Cumulative (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!
EAPC (2023)		0	0	0	45	50	0	0	1.8%	0.7%	#NUM!
Avenue 38 w/o Washington Street											
Existing (2020)		2	0	376	45	50	0	0	1.8%	0.7%	51.6
EAP (2023)		2	0	392	45	50	0	0	1.8%	0.7%	51.7
Existing + Cumulative (2023)		2	0	376	45	50	0	0	1.8%	0.7%	51.6
EAPC (2023)		2	0	392	45	50	0	0	1.8%	0.7%	51.7

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Washington Street n/o Avenue 38																									
Existing (2020)	3,307	541	409	67	27	4	1	6	2	72.7	79.9	83.8	0.9	65.1	55.5	55.4	66.0	62.2	47.9	45.2	62.4	49.0	46.0	46.2	52.0
EAP (2023)	3,512	574	434	71	28	4	1	6	3	72.7	79.9	83.8	0.9	65.4	55.7	55.7	66.3	62.4	48.1	45.5	62.7	49.2	46.3	46.4	52.3
Existing + Cumulative (2023)	3,431	561	424	69	28	4	1	6	2	72.7	79.9	83.8	0.9	65.3	55.6	55.6	66.1	62.3	48.0	45.4	62.6	49.1	46.2	46.3	52.2
EAPC (2023)	3,636	594	449	74	29	4	1	6	3	72.7	79.9	83.8	0.9	65.6	55.9	55.8	66.4	62.6	48.3	45.7	62.8	49.4	46.4	46.6	52.5
Washington Street s/o Avenue 38																									
Existing (2020)	3,400	556	420	69	27	4	1	6	2	69.3	77.6	82.1	0.2	62.0	53.5	54.0	63.2	59.1	45.9	43.9	59.4	45.9	44.1	44.8	49.7
EAP (2023)	3,605	589	445	73	29	4	1	6	3	69.3	77.6	82.1	0.2	62.3	53.8	54.3	63.4	59.3	46.2	44.1	59.7	46.1	44.3	45.0	50.0
Existing + Cumulative (2023)	3,524	576	435	71	28	4	1	6	3	69.3	77.6	82.1	0.2	62.2	53.7	54.2	63.3	59.2	46.1	44.0	59.6	46.0	44.2	44.9	49.9
EAPC (2023)	3,730	610	461	76	30	4	1	6	3	69.3	77.6	82.1	0.2	62.5	53.9	54.4	63.6	59.5	46.3	44.3	59.8	46.3	44.5	45.2	50.1
Avenue 38 e/o Washington Street																									
Existing (2020)	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAP (2023)	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Existing + Cumulative (2023)	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAPC (2023)	0	0	0	0	0	0	0	0	0	69.3	77.6	82.1	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Avenue 38 w/o Washington Street																									
Existing (2020)	292	48	36	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.2	42.7	43.2	52.3	48.2	35.1	33.0	48.6	35.0	33.2	33.9	38.9
EAP (2023)	305	50	38	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.4	42.9	43.4	52.5	48.4	35.3	33.2	48.7	35.2	33.4	34.1	39.1
Existing + Cumulative (2023)	292	48	36	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.2	42.7	43.2	52.3	48.2	35.1	33.0	48.6	35.0	33.2	33.9	38.9
EAPC (2023)	305	50	38	6	2	0	0	1	0	69.3	77.6	82.1	0.0	51.4	42.9	43.4	52.5	48.4	35.3	33.2	48.7	35.2	33.4	34.1	39.1

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 14
Washington Street & Varner Road

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Washington Street

Southbound

	right	through	left
Existing (2020)	149	590	244
EAP (2023)	158	626	259
Existing + Cumulative (2023)	149	600	244
EAPC (2023)	158	636	259
Project-Only	0	0	0
Ambient-Only	9	36	15

Varner Road

Eastbound

	left	through	right
Existing (2020)	57	127	137
EAP (2023)	60	136	153
Existing + Cumulative (2023)	57	129	139
EAPC (2023)	60	138	155
Project-Only	0	1	8
Ambient-Only	3	8	8

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Westbound

	right	through	left
Existing (2020)	224	193	554
EAP (2023)	238	330	588
Existing + Cumulative (2023)	224	197	556
EAPC (2023)	238	334	590
Project-Only	0	125	0
Ambient-Only	14	12	34

Northbound

	left	through	right
Existing (2020)	364	761	743
EAP (2023)	439	808	788
Existing + Cumulative (2023)	368	771	749
EAPC (2023)	443	818	794
Project-Only	53	0	0
Ambient-Only	22	47	45

ADT

Road	Washington Street		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		Washington Street	
Existing (2020)	16,200.0	25,192.0	16,680.0	8,216.0
EAP (2023)	17,192.0	27,216.0	18,712.0	10,208.0
Existing + Cumulative (2023)	16,360.0	25,464.0	16,792.0	8,312.0
EAPC (2023)	17,352.0	27,488.0	18,824.0	10,304.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME					Design	Dist. from		Barrier	Vehicle Mix			Traffic Volumes									Ref. Energy Levels			Dist	Ld				Le				Ln			
Segment	Land Use	Lanes	Median Width	ADT Volume	Speed (mph)	Center tc Receptor	Alpha Factor (1	Attn. dB(A)	Medium Trucks	Heavy Trucks	dB(A) CNEL	Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total
Washington Street n/o Varner Road																																				
Existing (2020)		5	23	16,200	45	50	0	0	1.8%	0.7%	69.4	####	2,057	1,555	255	101	15	3	22	9	69.3	77.6	82.1	1.5	69.0	60.5	61.0	70.2	66.1	52.9	50.8	66.4	52.9	51.1	51.8	56.7
EAP (2023)		5	23	17,192	45	50	0	0	1.8%	0.7%	69.6	####	2,183	1,650	271	107	16	3	23	10	69.3	77.6	82.1	1.5	69.3	60.8	61.3	70.4	66.3	53.2	51.1	66.6	53.1	51.3	52.0	57.0
Existing + Cumulative (2023)		5	23	16,360	45	50	0	0	1.8%	0.7%	69.4	####	2,078	1,571	257	102	15	3	22	9	69.3	77.6	82.1	1.5	69.1	60.5	61.0	70.2	66.1	53.0	50.9	66.4	52.9	51.1	51.8	56.8
EAPC (2023)		5	23	17,352	45	50	0	0	1.8%	0.7%	69.7	####	2,204	1,666	273	108	16	3	23	10	69.3	77.6	82.1	1.5	69.3	60.8	61.3	70.5	66.4	53.2	51.1	66.7	53.2	51.3	52.1	57.0
Washington Street s/o Varner Road																																				
Existing (2020)		7	0	25,192	45	50	0	0	1.8%	0.7%	71.4	####	3,199	2,418	396	157	23	5	34	14	69.3	77.6	82.1	1.5	71.0	62.5	63.0	72.2	68.0	54.9	52.8	68.4	54.8	53.0	53.8	58.7
EAP (2023)		7	0	27,216	45	50	0	0	1.8%	0.7%	71.7	####	3,456	2,613	428	170	25	5	37	15	69.3	77.6	82.1	1.5	71.4	62.8	63.3	72.5	68.4	55.2	53.2	68.7	55.2	53.4	54.1	59.0
Existing + Cumulative (2023)		7	0	25,464	45	50	0	0	1.8%	0.7%	71.4	####	3,234	2,445	401	159	23	5	34	14	69.3	77.6	82.1	1.5	71.1	62.5	63.0	72.2	68.1	55.0	52.9	68.4	54.9	53.1	53.8	58.8
EAPC (2023)		7	0	27,488	45	50	0	0	1.8%	0.7%	71.7	####	3,491	2,639	433	171	25	5	37	16	69.3	77.6	82.1	1.5	71.4	62.9	63.4	72.5	68.4	55.3	53.2	68.7	55.2	53.4	54.1	59.1
Varner Road e/o Washington Street																																				
Existing (2020)		5	17	16,680	45	50	0	0	1.8%	0.7%	69.2	####	2,118	1,601	262	104	15	3	23	9	69.3	77.6	82.1	1.1	68.8	60.3	60.8	70.0	65.9	52.7	50.6	66.2	52.7	50.8	51.6	56.5
EAP (2023)		5	17	18,712	45	50	0	0	1.8%	0.7%	69.7	####	2,376	1,796	294	117	17	4	25	11	69.3	77.6	82.1	1.1	69.3	60.8	61.3	70.5	66.4	53.2	51.1	66.7	53.2	51.3	52.1	57.0
Existing + Cumulative (2023)		5	17	16,792	45	50	0	0	1.8%	0.7%	69.2	####	2,133	1,612	264	105	15	3	23	9	69.3	77.6	82.1	1.1	68.9	60.3	60.8	70.0	65.9	52.7	50.7	66.2	52.7	50.9	51.6	56.6
EAPC (2023)		5	17	18,824	45	50	0	0	1.8%	0.7%	69.7	####	2,391	1,807	296	117	17	4	25	11	69.3	77.6	82.1	1.1	69.4	60.8	61.3	70.5	66.4	53.2	51.2	66.7	53.2	51.4	52.1	57.1
Varner Road w/o Washington Street																																				
Existing (2020)		4	17	8,216	45	50	0	0	1.8%	0.7%	65.6	6,384	1,043	789	129	51	7	2	11	5	69.3	77.6	82.1	0.6	65.3	56.7	57.2	66.4	62.3	49.2	47.1	62.6	49.1	47.3	48.0	53.0
EAP (2023)		4	17	10,208	45	50	0	0	1.8%	0.7%	66.6	7,932	1,296	980	161	64	9	2	14	6	69.3	77.6	82.1	0.6	66.2	57.7	58.2	67.4	63.2	50.1	48.0	63.6	50.1	48.2	49.0	53.9
Existing + Cumulative (2023)		4	17	8,312	45	50	0	0	1.8%	0.7%	65.7	6,458	1,056	798	131	52	8	2	11	5	69.3	77.6	82.1	0.6	65.3	56.8	57.3	66.5	62.4	49.2	47.1	62.7	49.2	47.3	48.1	53.0
EAPC (2023)		4	17	10,304	45	50	0	0	1.8%	0.7%	66.6	8,006	1,309	989	162	64	9	2	14	6	69.3	77.6	82.1	0.6	66.3	57.7	58.2	67.4	63.3	50.1	48.1	63.6	50.1	48.3	49.0	54.0

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 15
Washington Street & I-10 EB Ramps

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Washington Street

Southbound

	right	through	left
Existing (2020)	0	1,115	239
EAP (2023)	0	1,186	259
Existing + Cumulative (2023)	0	1,129	239
EAPC (2023)	0	1,200	259
Project-Only	0	3	5
Ambient-Only	0	68	15

I-10 EB Ramps

Eastbound

	left	through	right
Existing (2020)	250	7	846
EAP (2023)	265	7	898
Existing + Cumulative (2023)	250	7	853
EAPC (2023)	265	7	905
Project-Only	0	0	0
Ambient-Only	15	0	52

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Westbound

	right	through	left
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

Northbound

	left	through	right
Existing (2020)	0	1,584	469
EAP (2023)	0	1,734	498
Existing + Cumulative (2023)	0	1,604	471
EAPC (2023)	0	1,754	500
Project-Only	0	53	0
Ambient-Only	0	97	29

ADT

Road	Washington Street		I-10 EB Ramps	
Leg	North of	South of	East of	West of
Cross Street	I-10 EB Ramps		Washington Street	
Existing (2020)	25,504.0	32,112.0	5,720.0	8,824.0
EAP (2023)	27,552.0	34,528.0	6,112.0	9,360.0
Existing + Cumulative (2023)	25,776.0	32,456.0	5,736.0	8,880.0
EAPC (2023)	27,824.0	34,872.0	6,128.0	9,416.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center tc Receptor	Alpha Factor (1	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Washington Street n/o I-10 EB Ramps											
Existing (2020)		7	0	25,504	45	50	0	0	1.8%	0.7%	71.4
EAP (2023)		7	0	27,552	45	50	0	0	1.8%	0.7%	71.8
Existing + Cumulative (2023)		7	0	25,776	45	50	0	0	1.8%	0.7%	71.5
EAPC (2023)		7	0	27,824	45	50	0	0	1.8%	0.7%	71.8
Washington Street s/o I-10 EB Ramps											
Existing (2020)		6	22	32,112	45	50	0	0	1.8%	0.7%	73.3
EAP (2023)		6	22	34,528	45	50	0	0	1.8%	0.7%	73.6
Existing + Cumulative (2023)		6	22	32,456	45	50	0	0	1.8%	0.7%	73.3
EAPC (2023)		6	22	34,872	45	50	0	0	1.8%	0.7%	73.6
I-10 EB Ramps e/o Washington Street											
Existing (2020)		1	0	5,720	70	50	0	0	1.8%	0.7%	68.2
EAP (2023)		1	0	6,112	70	50	0	0	1.8%	0.7%	68.5
Existing + Cumulative (2023)		1	0	5,736	70	50	0	0	1.8%	0.7%	68.2
EAPC (2023)		1	0	6,128	70	50	0	0	1.8%	0.7%	68.5
I-10 EB Ramps w/o Washington Street											
Existing (2020)		1	0	8,824	70	50	0	0	1.8%	0.7%	70.1
EAP (2023)		1	0	9,360	70	50	0	0	1.8%	0.7%	70.4
Existing + Cumulative (2023)		1	0	8,880	70	50	0	0	1.8%	0.7%	70.1
EAPC (2023)		1	0	9,416	70	50	0	0	1.8%	0.7%	70.4

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Washington Street n/o I-10 EB Ramps																									
Existing (2020)	####	3,239	2,448	401	159	23	5	35	14	69.3	77.6	82.1	1.5	71.1	62.5	63.0	72.2	68.1	55.0	52.9	68.4	54.9	53.1	53.8	58.8
EAP (2023)	####	3,499	2,645	434	172	25	5	37	16	69.3	77.6	82.1	1.5	71.4	62.9	63.4	72.5	68.4	55.3	53.2	68.8	55.2	53.4	54.1	59.1
Existing + Cumulative (2023)	####	3,274	2,474	406	161	23	5	35	15	69.3	77.6	82.1	1.5	71.1	62.6	63.1	72.3	68.1	55.0	52.9	68.5	54.9	53.1	53.9	58.8
EAPC (2023)	####	3,534	2,671	438	174	25	6	38	16	69.3	77.6	82.1	1.5	71.5	62.9	63.4	72.6	68.5	55.3	53.3	68.8	55.3	53.5	54.2	59.1
Washington Street s/o I-10 EB Ramps																									
Existing (2020)	####	4,078	3,083	505	200	29	6	43	18	69.3	77.6	82.1	2.4	72.9	64.4	64.9	74.0	69.9	56.8	54.7	70.3	56.7	54.9	55.6	60.6
EAP (2023)	####	4,385	3,315	543	215	31	7	47	19	69.3	77.6	82.1	2.4	73.2	64.7	65.2	74.4	70.2	57.1	55.0	70.6	57.1	55.2	56.0	60.9
Existing + Cumulative (2023)	####	4,122	3,116	511	202	30	6	44	18	69.3	77.6	82.1	2.4	73.0	64.4	64.9	74.1	70.0	56.8	54.8	70.3	56.8	55.0	55.7	60.7
EAPC (2023)	####	4,429	3,348	549	217	32	7	47	20	69.3	77.6	82.1	2.4	73.3	64.7	65.2	74.4	70.3	57.2	55.1	70.6	57.1	55.3	56.0	61.0
I-10 EB Ramps e/o Washington Street																									
Existing (2020)	4,444	726	549	90	36	5	1	8	3	76.8	82.5	85.8	-0.1	68.5	57.5	56.7	69.1	65.5	49.9	46.6	65.7	52.3	48.0	47.5	54.6
EAP (2023)	4,749	776	587	96	38	6	1	8	3	76.8	82.5	85.8	-0.1	68.8	57.7	57.0	69.4	65.8	50.2	46.8	66.0	52.6	48.3	47.8	54.9
Existing + Cumulative (2023)	4,457	728	551	90	36	5	1	8	3	76.8	82.5	85.8	-0.1	68.5	57.5	56.7	69.1	65.6	49.9	46.6	65.7	52.4	48.0	47.5	54.6
EAPC (2023)	4,761	778	588	96	38	6	1	8	3	76.8	82.5	85.8	-0.1	68.8	57.8	57.0	69.4	65.8	50.2	46.9	66.0	52.6	48.3	47.8	54.9
I-10 EB Ramps w/o Washington Street																									
Existing (2020)	6,856	1,121	847	139	55	8	2	12	5	76.8	82.5	85.8	-0.1	70.4	59.3	58.6	71.0	67.4	51.8	48.4	67.6	54.2	49.9	49.4	56.5
EAP (2023)	7,273	1,189	899	147	58	9	2	13	5	76.8	82.5	85.8	-0.1	70.7	59.6	58.9	71.2	67.7	52.0	48.7	67.8	54.5	50.1	49.6	56.8
Existing + Cumulative (2023)	6,900	1,128	852	140	55	8	2	12	5	76.8	82.5	85.8	-0.1	70.4	59.4	58.6	71.0	67.4	51.8	48.5	67.6	54.3	49.9	49.4	56.5
EAPC (2023)	7,316	1,196	904	148	59	9	2	13	5	76.8	82.5	85.8	-0.1	70.7	59.6	58.9	71.3	67.7	52.0	48.7	67.9	54.5	50.2	49.7	56.8

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 16
Washington Street & Country Club Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Washington Street

Southbound

	right	through	left
Existing (2020)	451	1,282	285
EAP (2023)	479	1,363	302
Existing + Cumulative (2023)	451	1,303	285
EAPC (2023)	479	1,384	302
Project-Only	0	3	0
Ambient-Only	28	78	17

Country Club Drive

Eastbound

	left	through	right
Existing (2020)	563	600	162
EAP (2023)	597	637	172
Existing + Cumulative (2023)	563	673	164
EAPC (2023)	597	710	174
Project-Only	0	0	0
Ambient-Only	34	37	10

N
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Westbound

	right	through	left
Existing (2020)	166	209	63
EAP (2023)	176	222	67
Existing + Cumulative (2023)	166	306	63
EAPC (2023)	176	319	67
Project-Only	0	0	0
Ambient-Only	10	13	4

Northbound

	left	through	right
Existing (2020)	259	1,277	37
EAP (2023)	275	1,408	39
Existing + Cumulative (2023)	261	1,299	37
EAPC (2023)	277	1,430	39
Project-Only	0	53	0
Ambient-Only	16	78	2

ADT

Road	Washington Street		Country Club Drive	
Leg	North of	South of	East of	West of
Cross Street	Country Club Drive		Washington Street	
Existing (2020)	32,192.0	24,640.0	10,880.0	17,952.0
EAP (2023)	34,600.0	26,592.0	11,544.0	19,056.0
Existing + Cumulative (2023)	32,536.0	25,016.0	12,240.0	19,344.0
EAPC (2023)	34,944.0	26,968.0	12,904.0	20,448.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Washington Street n/o Country Club Drive											
Existing (2020)		6	22	32,192	45	50	0	0	1.8%	0.7%	73.3
EAP (2023)		6	22	34,600	45	50	0	0	1.8%	0.7%	73.6
Existing + Cumulative (2023)		6	22	32,536	45	50	0	0	1.8%	0.7%	73.3
EAPC (2023)		6	22	34,944	45	50	0	0	1.8%	0.7%	73.6
Washington Street s/o Country Club Drive											
Existing (2020)		6	18	24,640	45	50	0	0	1.8%	0.7%	71.7
EAP (2023)		6	18	26,592	45	50	0	0	1.8%	0.7%	72.1
Existing + Cumulative (2023)		6	18	25,016	45	50	0	0	1.8%	0.7%	71.8
EAPC (2023)		6	18	26,968	45	50	0	0	1.8%	0.7%	72.1
Country Club Drive e/o Washington Street											
Existing (2020)		4	11	10,880	50	50	0	0	1.8%	0.7%	67.8
EAP (2023)		4	11	11,544	50	50	0	0	1.8%	0.7%	68.1
Existing + Cumulative (2023)		4	11	12,240	50	50	0	0	1.8%	0.7%	68.3
EAPC (2023)		4	11	12,904	50	50	0	0	1.8%	0.7%	68.5
Country Club Drive w/o Washington Street											
Existing (2020)		4	19	17,952	50	50	0	0	1.8%	0.7%	70.2
EAP (2023)		4	19	19,056	50	50	0	0	1.8%	0.7%	70.5
Existing + Cumulative (2023)		4	19	19,344	50	50	0	0	1.8%	0.7%	70.5
EAPC (2023)		4	19	20,448	50	50	0	0	1.8%	0.7%	70.8

Segment	Traffic Volumes Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	Ref. Energy Levels A	MT	HT	Dist Adj	Ld A	MT	HT	Total	Le A	MT	HT	Total	Ln A	MT	HT	Total
Washington Street n/o Country Club Drive																									
Existing (2020)	####	4,088	3,090	507	201	29	6	44	18	69.3	77.6	82.1	2.4	72.9	64.4	64.9	74.1	69.9	56.8	54.7	70.3	56.7	54.9	55.7	60.6
EAP (2023)	####	4,394	3,322	545	216	31	7	47	20	69.3	77.6	82.1	2.4	73.2	64.7	65.2	74.4	70.3	57.1	55.0	70.6	57.1	55.2	56.0	60.9
Existing + Cumulative (2023)	####	4,132	3,123	512	203	30	6	44	18	69.3	77.6	82.1	2.4	73.0	64.4	64.9	74.1	70.0	56.9	54.8	70.3	56.8	55.0	55.7	60.7
EAPC (2023)	####	4,438	3,355	550	218	32	7	47	20	69.3	77.6	82.1	2.4	73.3	64.7	65.2	74.4	70.3	57.2	55.1	70.6	57.1	55.3	56.0	61.0
Washington Street s/o Country Club Drive																									
Existing (2020)	####	3,129	2,365	388	154	22	5	33	14	69.3	77.6	82.1	2.0	71.4	62.8	63.3	72.5	68.4	55.3	53.2	68.7	55.2	53.4	54.1	59.1
EAP (2023)	####	3,377	2,553	418	166	24	5	36	15	69.3	77.6	82.1	2.0	71.7	63.2	63.7	72.8	68.7	55.6	53.5	69.1	55.5	53.7	54.4	59.4
Existing + Cumulative (2023)	####	3,177	2,402	394	156	23	5	34	14	69.3	77.6	82.1	2.0	71.4	62.9	63.4	72.6	68.5	55.3	53.2	68.8	55.3	53.5	54.2	59.1
EAPC (2023)	####	3,425	2,589	424	168	25	5	37	15	69.3	77.6	82.1	2.0	71.8	63.2	63.7	72.9	68.8	55.6	53.6	69.1	55.6	53.8	54.5	59.5
Country Club Drive e/o Washington Street																									
Existing (2020)	8,454	1,382	1,044	171	68	10	2	15	6	71.1	78.8	83.0	0.5	67.6	58.5	58.7	68.6	64.7	50.9	48.6	64.9	51.5	49.1	49.5	54.9
EAP (2023)	8,970	1,466	1,108	182	72	10	2	16	7	71.1	78.8	83.0	0.5	67.9	58.8	59.0	68.9	64.9	51.2	48.8	65.2	51.7	49.3	49.7	55.2
Existing + Cumulative (2023)	9,510	1,554	1,175	193	76	11	2	17	7	71.1	78.8	83.0	0.5	68.2	59.0	59.2	69.1	65.2	51.4	49.1	65.5	52.0	49.6	50.0	55.4
EAPC (2023)	####	1,639	1,239	203	80	12	3	17	7	71.1	78.8	83.0	0.5	68.4	59.2	59.5	69.4	65.4	51.7	49.3	65.7	52.2	49.8	50.2	55.6
Country Club Drive w/o Washington Street																									
Existing (2020)	####	2,280	1,723	283	112	16	4	24	10	71.1	78.8	83.0	0.7	70.1	60.9	61.1	71.0	67.1	53.3	51.0	67.4	53.9	51.5	51.9	57.3
EAP (2023)	####	2,420	1,829	300	119	17	4	26	11	71.1	78.8	83.0	0.7	70.3	61.2	61.4	71.3	67.3	53.6	51.2	67.6	54.1	51.7	52.2	57.6
Existing + Cumulative (2023)	####	2,457	1,857	304	121	18	4	26	11	71.1	78.8	83.0	0.7	70.4	61.2	61.5	71.4	67.4	53.7	51.3	67.7	54.2	51.8	52.2	57.6
EAPC (2023)	####	2,597	1,963	322	128	19	4	28	12	71.1	78.8	83.0	0.7	70.6	61.5	61.7	71.6	67.6	53.9	51.5	67.9	54.5	52.0	52.5	57.9

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: Riverside Arena rev. (Date)
PM Peak Hour

Intersection: 17
Varner Road & I-10 WB Ramps

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

I-10 WB Ramps

Southbound

	right	through	left
Existing (2020)	0	0	0
EAP (2023)	0	0	0
Existing + Cumulative (2023)	0	0	0
EAPC (2023)	0	0	0
Project-Only	0	0	0
Ambient-Only	0	0	0

Varner Road

Eastbound

	left	through	right
Existing (2020)	0	876	381
EAP (2023)	0	931	404
Existing + Cumulative (2023)	0	878	387
EAPC (2023)	0	933	410
Project-Only	0	1	0
Ambient-Only	0	54	23

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Westbound

	right	through	left
Existing (2020)	0	714	174
EAP (2023)	0	782	185
Existing + Cumulative (2023)	0	718	174
EAPC (2023)	0	786	185
Project-Only	0	24	0
Ambient-Only	0	44	11

Northbound

	left	through	right
Existing (2020)	551	0	79
EAP (2023)	686	0	84
Existing + Cumulative (2023)	553	0	79
EAPC (2023)	688	0	84
Project-Only	101	0	0
Ambient-Only	34	0	5

ADT

Road	I-10 WB Ramps		Varner Road	
Leg	North of	South of	East of	West of
Cross Street	Varner Road		I-10 WB Ramps	
Existing (2020)	0.0	9,480.0	14,744.0	20,176.0
EAP (2023)	0.0	10,872.0	15,856.0	22,424.0
Existing + Cumulative (2023)	0.0	9,544.0	14,792.0	20,288.0
EAPC (2023)	0.0	10,936.0	15,904.0	22,536.0

2
NOISE LEVEL CONTOURS - Existing Plus Project Off-Site ADT Volumes

ROADWAY NAME					Design	Dist. from		Barrier	Vehicle Mix		
Segment	Land Use	Lanes	Median Width	ADT Volume	Speed (mph)	Center tc Receptor	Alpha Factor (1)	Attn. dB(A)	Medium Trucks	Heavy Trucks	dB(A) CNEL
I-10 WB Rampse n/o Varner Road											
Existing (2020)		0	0	0	70	50	0	0	1.8%	0.7%	#NUM!
EAP (2023)		0	0	0	70	50	0	0	1.8%	0.7%	#NUM!
Existing + Cumulative (2023)		0	0	0	70	50	0	0	1.8%	0.7%	#NUM!
EAPC (2023)		0	0	0	70	50	0	0	1.8%	0.7%	#NUM!
I-10 WB Ramps s/o Varner Road											
Existing (2020)		4	0	9,480	70	50	0	0	1.8%	0.7%	70.7
EAP (2023)		4	0	10,872	70	50	0	0	1.8%	0.7%	71.3
Existing + Cumulative (2023)		4	0	9,544	70	50	0	0	1.8%	0.7%	70.7
EAPC (2023)		4	0	10,936	70	50	0	0	1.8%	0.7%	71.3
Varner Road e/o I-10 WB Ramps											
Existing (2020)		5	15	14,744	45	50	0	0	1.8%	0.7%	68.6
EAP (2023)		5	15	15,856	45	50	0	0	1.8%	0.7%	68.9
Existing + Cumulative (2023)		5	15	14,792	45	50	0	0	1.8%	0.7%	68.6
EAPC (2023)		5	15	15,904	45	50	0	0	1.8%	0.7%	68.9
Varner Road w/o I-10 WB Ramps											
Existing (2020)		4	19	20,176	45	50	0	0	1.8%	0.7%	69.6
EAP (2023)		4	19	22,424	45	50	0	0	1.8%	0.7%	70.1
Existing + Cumulative (2023)		4	19	20,288	45	50	0	0	1.8%	0.7%	69.6
EAPC (2023)		4	19	22,536	45	50	0	0	1.8%	0.7%	70.1

Segment	Traffic Volumes									Ref. Energy Levels			Dist	Ld				Le				Ln			
	Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total
I-10 WB Rampse n/o Varner Road																									
Existing (2020)	0	0	0	0	0	0	0	0	0	76.8	82.5	85.8	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAP (2023)	0	0	0	0	0	0	0	0	0	76.8	82.5	85.8	0.0	####	####	####	####	####	####	####	####	####	####	####	####
Existing + Cumulative (2023)	0	0	0	0	0	0	0	0	0	76.8	82.5	85.8	0.0	####	####	####	####	####	####	####	####	####	####	####	####
EAPC (2023)	0	0	0	0	0	0	0	0	0	76.8	82.5	85.8	0.0	####	####	####	####	####	####	####	####	####	####	####	####
I-10 WB Ramps s/o Varner Road																									
Existing (2020)	7,366	1,204	910	149	59	9	2	13	5	76.8	82.5	85.8	0.2	71.0	59.9	59.2	71.6	68.0	52.4	49.1	68.2	54.8	50.5	50.0	57.1
EAP (2023)	8,448	1,381	1,044	171	68	10	2	15	6	76.8	82.5	85.8	0.2	71.6	60.5	59.8	72.2	68.6	53.0	49.7	68.8	55.4	51.1	50.6	57.7
Existing + Cumulative (2023)	7,416	1,212	916	150	60	9	2	13	5	76.8	82.5	85.8	0.2	71.0	60.0	59.3	71.6	68.1	52.4	49.1	68.2	54.9	50.5	50.0	57.2
EAPC (2023)	8,497	1,389	1,050	172	68	10	2	15	6	76.8	82.5	85.8	0.2	71.6	60.6	59.8	72.2	68.7	53.0	49.7	68.8	55.5	51.1	50.6	57.8
Varner Road e/o I-10 WB Ramps																									
Existing (2020)	####	1,872	1,415	232	92	13	3	20	8	69.3	77.6	82.1	1.0	68.2	59.7	60.2	69.3	65.2	52.1	50.0	65.6	52.0	50.2	50.9	55.9
EAP (2023)	####	2,014	1,522	250	99	14	3	21	9	69.3	77.6	82.1	1.0	68.5	60.0	60.5	69.7	65.5	52.4	50.3	65.9	52.3	50.5	51.3	56.2
Existing + Cumulative (2023)	####	1,879	1,420	233	92	13	3	20	8	69.3	77.6	82.1	1.0	68.2	59.7	60.2	69.3	65.2	52.1	50.0	65.6	52.0	50.2	51.0	55.9
EAPC (2023)	####	2,020	1,527	250	99	14	3	22	9	69.3	77.6	82.1	1.0	68.5	60.0	60.5	69.7	65.6	52.4	50.3	65.9	52.4	50.5	51.3	56.2
Varner Road w/o I-10 WB Ramps																									
Existing (2020)	####	2,562	1,937	318	126	18	4	27	11	69.3	77.6	82.1	0.7	69.2	60.7	61.2	70.4	66.3	53.1	51.1	66.6	53.1	51.3	52.0	56.9
EAP (2023)	####	2,848	2,153	353	140	20	4	30	13	69.3	77.6	82.1	0.7	69.7	61.2	61.7	70.8	66.7	53.6	51.5	67.1	53.5	51.7	52.4	57.4
Existing + Cumulative (2023)	####	2,577	1,948	319	127	18	4	27	11	69.3	77.6	82.1	0.7	69.3	60.7	61.2	70.4	66.3	53.2	51.1	66.6	53.1	51.3	52.0	57.0
EAPC (2023)	####	2,862	2,163	355	141	20	4	31	13	69.3	77.6	82.1	0.7	69.7	61.2	61.7	70.9	66.8	53.6	51.5	67.1	53.6	51.7	52.5	57.4

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

APPENDIX F1

Transportation Analysis Report

Riverside County Arena Project

Transportation Analysis Report

PPT200021

March, 2021

Prepared by

The **Mobility** Group

Riverside County Arena Project

Transportation Analysis Report

PPT200021

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Riverside County Arena

Transportation Analysis

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0. EXECUTIVE SUMMARY

0.1 Introduction

This report provides the Transportation Analysis (TA) for the proposed Northstar Specific Plan Amendment (SP00343). The Specific Plan location is in Riverside County north of the I-10 freeway and east of Cook Street. The Case Number is PPT200021.

The NorthStar Specific Plan was approved in 2006. Since that time the only development that has occurred is the completion of the Classic Club Golf Course, and the roadway connection via Classic Club Boulevard to Varner Road.

0.2 Specific Plan Amendment

A Specific Plan Amendment is proposed to accommodate a new sports arena in the Specific Plan. Approved and amended Specific Plan concepts are illustrated in Chapter 1. The arena would be located in a newly defined Planning Area 11, which would be created by reducing the size Planning Area 8 and also revising the boundaries of several other adjacent planning areas. This amendment would result in reduction in the amount of Business Park uses currently allowed by the Specific Plan in Planning Area 8.All other land use types and quantities in the Approved Specific Plan would remain the same.

The arena site, adjacent to Varner Road, will include a 9,918 seat arena to accommodate an American Hockey League (AHL) team. It will also hot other types of events, such as concerts, family shows, other sporting events, and various smaller miscellaneous events, with the capability of seating up to 11,000 for concerts. The project will also include a practice ice rink, which will serve at times as a community ice facility. As planned, the project may also include a basketball training facility that would be developed at a later date that would host a National Basketball Association (NBA) G League Team. This potential addition to the arena complex is also analyzed in this study.

There would be approximately 184 events a year. Of these about 30 events would have an attendance of between 10,000 and 11,000, about 71 would have an attendance of 7,000 to 7,500, and 83 events would have an attendance of 5,000 or less. There would be approximately 181 day a year when there would be no events at the arena. The arena would open in 2023.

0.3 California Environmental Quality Act Review

An EIR was certified for the Approved Specific Plan in 2006. The analysis in this EIR is being updated to address the changes in impacts that would result from the proposed Specific Plan Amendment.

0.4 Purpose of Transportation Analysis

The purpose of the Transportation Analysis is to address transportation conditions for the proposed project to determine

(1) if there would be any additional significant environmental impacts over and above those defined in the 2006 EIR,
(2) to compare traffic conditions and the potential need for roadway improvements compared to the 2006 EIR Traffic Study and the Specific Plan Conditions of Approval.
(3) to analyze traffic conditions with respect to consistency with the County of Riverside General Plan.

0.5 Study Purpose & Objectives

The purpose of the Transportation Analysis is to address transportation conditions for the proposed project described in the Specific Plan Amendment (the "Project"), to (1) determine if there would be any new significant environmental impacts or a substantial increase in the severity of significant impacts previously identified in Environmental Impact Report No. 470 (Northstar Palm Desert Specific Plan), SCH 2005011054, certified in connection with the approval of the original Specific Plan (the "2006 EIR"); and (2) compare operational conditions and the potential need for roadway improvements compared to the 2006 EIR Traffic Study and the Specific Plan Conditions of Approval. The methodology in this study follows the Transportation Analysis Guidelines of Riverside County.

Section 15064.3, Determining the Significance of Transportation Impacts, added to the CEQA Guidelines to implement SB 743, effective on July 1, 2020, states that analysis of vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts and, for this reason, roadway level of service should no longer be used to determine significant transportation impacts. VMT is the amount and distance of automobile travel attributable to a project. Analysis of the VMT impacts of the proposed Specific Plan Amendment was completed in a separate study, Northstar Specific Plan EIR Addendum VMT Analysis Memo, Fehr & Peers, February 2021. This analysis compared the VMT that would be generated by the uses allowed by the Adopted Northstar Specific Plan and the proposed Specific Plan Amendment. It concluded the proposed Specific Plan Amendment annualized VMT would be within 1% of the annualized VMT generated by the Adopted Specific Plan. Based on this analysis, the proposed Specific Plan Amendment will not result in significant transportation impacts.

The Riverside County General Plan defines level of service targets to assess the performance of a street or highway system and the capacity of roadways to ensure the County provides and maintains a highway system with adequate capacity and acceptable levels of service to accommodate projected travel demands associated with buildout of the Land Use Element. The County's General Plan requires that traffic and circulation effects of proposed development projects, General Plan Amendments, and Specific Plans be analyzed. Level of Service (LOS) analysis is used to assess the capacity and identify operational deficiencies for County roadways. In order to maintain consistency with the General Plan, LOS analysis is required to identify deficiencies and provide recommendations to meet level of service targets.

Analysis of the level of service of the roadway network is provided to determine the consistency of the proposed Specific Plan Amendment with the General Plan. The analysis shows that with the improvement identified above, there would be no further roadway improvements required to provide acceptable operating conditions as defined by the General Plan.

0.6 Focus of Current Study

Scenarios

The Transportation Study addresses the following conditions:

- Existing Conditions, 2020
- Existing + Ambient + Project Conditions (EAP), 2023
- Existing + Ambient + Project + Cumulative Conditions (EAPC), 2023

This study addresses opening day for the arena, and meets the requirement of the Specific Plan to analyze each individual project phase of the Specific Plan. It allows determination of which, if any, of the Specific Plan roadway improvements should be attributable to the Arena Project.

Analysis Time Periods

<u>For Purposes of Evaluating General Plan Consistency and Comparison to the 2006 EIR TS.</u>

An AM Peak Hour analysis is not necessary for the arena event facility as there are negligible trips in that time period (see also Chapter 4).

The Traffic Operations Analysis addresses the Weekday PM Peak Hour of 5:00 - 6:00pm consistent with the 2006 EIR Traffic Study PM peak hour analysis, and the analysis of Specific Plan land uses in that 2006 study. This is also consistent with the generally accepted practice and methodology for traffic studies to address the PM peak hour.

The Traffic Operations Analysis addresses the Average AHL Event, 7,500 attendance event scenario in the PM peak hour. The Average AHL Event attendance covers approximately 80% of all events that would occur at the arena (see also Chapter 4). It is considered a conservative approach as traffic studies typically address average trips.

For Purposes of Addressing a Transportation Management Plan (TMP)

The arena would also generate trips in other hours than the PM peak hour. The highest number of arena trips would occur in the Pre-Event and Post-Event hours. Due to their transient nature, traffic operations for these hours for entertainment facilities like arenas and sports stadiums are most typically addressed with Transportation Management Plans – which contain temporary operational measures to efficiently facilitate the traffic flows, rather than physical roadway improvements (which would not be needed for non-event days or lower attendance events).

For the purposes of facilitating preparation of a TMP, the traffic analysis addresses the following scenarios for a Sellout Concert: Pre-Event Hour (6:00-7:00pm); Post Event Hour (11:00pm to 12:00am).

This analysis is conducted for the purpose of identifying the types and locations of measures that would be necessary for the efficient management of temporary event traffic. This Transportation Study does not prepare a detailed TMP. That is most appropriately completed closer to opening day of the arena, in order to reflect the most recent conditions at that time, and to allow for coordination between the arena and the various transportation agencies. Rather, based on a quantitative analysis, this Transportation Study provides an outline of potential measures to be ultimately included in a TMP.

0.7 Summary of PM Peak Hour Analysis – 2006 EIR and Current Study

Background

The 2006 EIR Traffic Study[1] (EIR-TS) addressed the following scenarios:

- Existing + Ambient + Project
- Opening Year 2007
- General Plan Buildout

Trip Comparison – Approved Specific Plan and Specific Plan Amendment

The 2006 Specific Plan EIR estimated the uses allowed by the Approved Specific Plan would generate 38,721 daily, 2,201 AM peak hour, and 3,820 PM peak hour trips[2]. The uses that would be allowed by the Proposed Specific Plan Amendment would include the arena, which would be active only about half of the days in the year. The study shows that in most every case (for all

[1] County of Riverside, Northstar (SP343) Traffic Impact Analysis (Revised), Kunzman Associates, May 5, 2005.

[2] County of Riverside, Planning Department, *NorthStar Specific Plan No. 343 and Final Environmental Impact Report No. 470,* prep. by Stantec/The Keith Companies (March 2006).

event types and for daily, AM peak hour and PM peak hour), total trips with the Proposed Specific Plan Amendment would be less than the total trips identified in the 2006 Specific Plan EIR. For one event type the daily trips with the Proposed Specific Plan Amendment would be slightly higher than the 2006 EIR. The daily trips for days with sellout concerts events would be 1.4% higher with the Amended Specific Plan. However, this would occur only 23 days of the year. The AM and PM peak hour trip totals for this event type would be lower than the Adopted Specific Plan. For all other events, and non-event days, the Amended Specific Plan trips will be lower than the Adopted Plan trip totals – a total of 342 days a year.

The Proposed Specific Plan Amendment, therefore, would not result in a substantial increase in the number of trips when compared to the trip generation estimate for the Approved Specific Plan previously analyzed in the 2006 Specific Plan EIR.

Impacts Identified In EIR

The 2006 EIR-TS identified significant impacts due to unacceptable LOS conditions at the following locations:

Opening Year 2007 Scenario

Jack Ivey Drive & Varner Road
Cook Street & Varner Road
Berkey Drive & Varner Road

General Plan Buildout Scenario

Monterey Avenue & Varner Road
Jack Ivey Drive & Varner Road
Cook Street & Varner Road
Cook Street & I-10 Freeway EB Ramps
Cook Street & Gerald Ford Drive
Avenue 38 & Varner Road
Berkey Drive & Varner Road
Washington Street & Avenue 38
Washington Street & Varner Road
Washington Street & I-10 Freeway EB Ramps

The 2006 EIR-TS identified roadway improvements at all these locations that resulted in acceptable levels of service, and no remaining unmitigated significant impacts identified.

Summary of Current Arena Analysis for Addendum

This study for the Specific Plan Addendum identified the following intersections where improvements are needed to maintain a LOS consistent with the applicable County of Riverside General Plan LOS standard of LOS D:

Existing + Ambient + Project (EAP) Conditions

Berkey Drive & Varner Road

Existing + Ambient + Project + Cumulative Conditions

Jack Ivey Drive & Varner Road
Cook Street & I-10 Freeway EB Ramps
Berkey Drive & Varner Road

This Transportation Study has identified roadway improvements at all these locations that would eliminate the projected deficiencies. The roadway improvements would be the same as those identified in the 2006 EIR.

Comparison to 2006 Specific Plan EIR

The analysis in this report shows that with the identified improvements, the Proposed Project would not result in any inconsistency with the General Plan LOS standard and no new significant or substantially more severe impacts than identified in the 2006 EIR would result from the proposed Specific Plan Amendment.

0.7 Summary of Pre-Event and Post Event Hour Analysis – 2006 EIR Event and Current Study

Background

The 2006 Specific Plan EIR addressed a special event scenario, the Bob Hope Chrysler Golf Course, a PGA sponsored event, in January of each year. The EIR addressed Sunday as the final round of the event, with an estimated attendance of 50,000, and analyzed the AM and PM peak hours (effectively the pre-event and post-event hours). The analysis estimated 8,512 AM peak hour trips and 7,837 PM peak hour trips.

By comparison, the arena will have far lower attendance levels (9,918 for an average AHL game and up to 11,000 for a concert), and is estimated to generate considerably lower trip totals (3,166 Pre-Event hour trips and 4,199 Post-Event hour trips for a concert sellout, and 2,175 and 2,902 for an average AHL game. The arena events will occur more frequently, with 184 events a year, occurring on weekdays and weekends, as described in Chapter 1. A Transportation Management Program, will be developed and implemented, to address Pre-Event and Post-Event traffic.

The 2006 EIR addressed a Sunday Morning and Sunday Afternoon peak hour (Pre-Event and Post-Event hours respectively). It addressed Interim Year 2010 With Major Event and Buildout Year 2015 With Major Event scenarios.

For the purposes of facilitating preparation of a TMP, the traffic analysis in this report addressed the following scenarios under EAPC conditions for a Sellout Concert: Pre-Event Hour (6:00 - 7:00pm), and Post Event Hour (11:00pm to 12:00am).

Impacts Identified In EIR

The 2006 EIR-TS identified significant impacts due to unacceptable LOS conditions at the following locations for the special event scenario:

Interim Year 2010 With Major Event

Monterey Avenue & Varner Road
Cook Street & Varner Road
Cook Street & I-10 EB Ramps
Cook Street & Gerald Ford Drive
Avenue 38 & Varner Road
Berkey Drive & Varner Road
Washington Street & Varner Road

Buildout Year 2015 With Major Event

Monterey Avenue & Varner Road
Cook Street & Varner Road
Cook Street & I-10 Freeway EB Ramps
Cook Street & Gerald Ford Drive
Avenue 38 & Varner Road
Berkey Drive & Varner Road
Washington Street & Varner Road

The 2006 EIR-TS identified a range of transportation management measures to address event traffic. These measures included:

- Parking Management, including Off-Site Remote Parking
- Event Notices and Information.
- Coordination with Agencies
- Temporary Intersection (Lane) Channelization

- Traffic Control Officers (TCO's)
- Differential Parking Pricing (Vehicle Occupancy)
- Monitoring

The EIR did not quantify the effects of these measures and concluded that that there would be unmitigated significant impacts remaining at the impacted intersections.

Summary of Current Arena Analysis for Addendum – Pre-Event and Post-Event Hours

The Pre-Event and Post-Event hours are evaluated in the following context. Unlike residential and commercial development which generate trips on a regular and recurring basis, arena events do not occur every day, but instead are irregular and temporary in nature. Arena traffic generation occurs during short time periods before and after events, outside the peak hours, and, in the case of the Post-Event hour, occur late in the evening, and do not represent typical everyday roadway operating conditions. The County LOS standards are applied to everyday roadway operations throughout the year, and are focused on the morning and evening peak hours. There are no County LOS standards applicable to the temporary traffic conditions with special events. While the County LOS standards were used for the pre-event and post-event hours analysis, they are not strictly appropriate for arenas.

Improvement measures are identified that more appropriately focus on temporary traffic control and management measures to control traffic operations for the few hours of an event (e.g. a Transportation Management Plan), rather than on permanent physical transportation improvements (e.g. street improvements). Physical infrastructure improvements would be unnecessary at all non-event times and would go largely unused at those times. The focus on utilizing TMP is the common approach that is used for event facilities across the country. For the reasons identified above, and given the intermittent nature and short duration of peak arena traffic (i.e., two hours per event - the pre-event and post-event hours) "improvement" measures for pre-event and post-event hours has focused on TMP measures to achieve a temporary LOS E or better. See also further discussion in Chapter 8.

This study for the Specific Plan Addendum identified intersections which would temporarily operate at LOS F under Existing + Ambient + Project + Cumulative Conditions without improvements or TMP measures at the following locations:

Pre-Event Hour

Cook Street & Varner Road
Cook Street & I-10 WB Ramps
Cook Street & I-10 EB Ramps
Varner Road & Berkey Drive

Post-Event Hour

Cook Street & Varner Road
Cook Street & I-10 WB Ramps
Varner Road & Berkey Drive
Washington Street & I-10 EB Ramps

Potential TMP measures to address traffic conditions at these intersections were evaluated and include:

- Modify signal timing (typically longer cycle lengths, and modified splits).
- Potential deployment of traffic control officers (TCO's).
- Temporary lane reassignments (with traffic cones/delineators, message boards).
- Diversion management of some project trips through parking lot exit management (from using Cook Street I-10 WB on-ramp to using Berkey Street I-10 WB on-ramp).

With deployment of these types of measures, temporary traffic conditions of LOS E or better would be achieved.

Comparison to 2006 EIR

The above TMP measures were also considered in the 2006 EIR, although without reference to application to specific intersections. The 2006 EIR concluded that significant impacts would remain during the special event. In this study, two additional measures were considered: temporary changes in signal timing - considered a temporary operational measure not a capital improvement, and also effectively addressed by a Traffic Control Office (TCO) measure; and diversion management of some project trips to better distribute between available on-ramps - which only affects project trips), Due to their nature, these are not considered to be new or different measures than those considered in the 2006 EIR.

As the current analysis has shown that TMP measures could achieve level of service of LOS E or better under temporary conditions, it is therefore concluded that the Project would not cause additional or more severe impacts in the Pre-Event and Post-Event Hours to those identified in the 2006 EIR.

1. INTRODUCTION

1.1 Study Purpose & Objectives

This report provides the Transportation Analysis (TA) for the proposed Northstar Specific Plan Amendment (SP00243) (the "Specific Plan Amendment"). The Case Number is PPT200021.

The purpose of the Transportation Analysis is to address transportation conditions for the proposed project described in the Specific Plan Amendment (the "Project"), to compare operational conditions and the potential need for roadway improvements compared to the 2006 EIR Traffic Study and the Specific Plan Conditions of Approval.

The methodology in this study follows the Transportation Analysis Guidelines of Riverside County. The scope of the analysis presented in this study is defined in an approved Scoping Agreement with the County of Riverside, attached as Appendix T.

Section 15064.3, Determining the Significance of Transportation Impacts, added to the CEQA Guidelines to implement SB 743, effective on July 1, 2020, states that analysis of vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts and, for this reason, roadway level of service should no longer be used to determine significant transportation impacts. VMT is the amount and distance of automobile travel attributable to a project. Analysis of the VMT impacts of the proposed Specific Plan Amendment was completed in a separate study, Northstar Specific Plan EIR Addendum VMT Analysis Memo, Fehr & Peers, February 2021. This analysis compared the annualized VMT that would be generated by the uses allowed by the Adopted Northstar Specific Plan and the proposed Specific Plan Amendment. It concluded the proposed Specific Plan Amendment annualized VMT would be within 1% of the annualized VMT generated by the Adopted Specific Plan. Based on this analysis, the proposed Specific Plan Amendment will not result in significant transportation impacts.

While roadway level of service (LOS) is no longer used to determine the significance of transportation impacts, the Riverside County General Plan defines level of service targets to assess the performance of a street or highway system and the capacity of a roadway to ensure the County provides and maintains a highway system with adequate capacity and acceptable levels of service to accommodate projected travel demands associated with buildout of the Land Use Element. Analysis of the level of service of the roadway network is provided to determine the consistency of the proposed Specific Plan Amendment with the General Plan. The proposed Specific Plan Amendment would not result in a substantial increase in the number of trips previously analyzed in the 2006 EIR for the adopted Specific Plan. The EAP analysis shows that with the improvements identified there would be no new significant environmental impacts, or substantial increases in the severity of significant impacts previously identified in the 2006 EIR for EAP conditions. The EAP analysis further shows that with the improvements identified, there would be no further roadway improvements required to provide acceptable operating conditions as defined by the General Plan.

1.2 Project Description

The Northstar Palm Desert Specific Plan (the "Specific Plan") is located on Varner Road between Cook Street and Washington Street, north of the I-10 freeway. The Specific Plan was approved in 2006. Figure 1.1 shows the Project location. Figure 1.2 shows the Approved Specific Plan Concept Plan. Since 2006 the only development that has occurred pursuant to the Specific Plan is the completion of the Classic Club Golf Course and Clubhouse, and the roadway connection via Classic Club Boulevard to Varner Road.

The proposed Specific Plan Amendment would permit the development of a new arena event center with approximately 9,918 seats (referred to herein as "the arena"), together with associated surface parking, all located within the Specific Plan area adjacent to Varner Road. The Proposed Specific Plan Amendment Concept Plan is shown in Figure 1.3. The arena would be located in a newly defined Planning Area 11. To accommodate this new planning area, Planning Area 8 would be reduced in size and the boundaries of other adjacent planning areas would be adjusted.

The arena will comprise 9,918 seats to accommodate an American Hockey League (AHL) team, and The arena will also host other types of events, such as concerts, family shows, other sporting events, and various smaller miscellaneous events, with the capability of seating up to 11,000 patrons for sell-out concerts in an end-stage configuration. An occasional concert event in 360 degree center stage configuration would allow for a maximum attendance of about 11,700 patrons (once or twice a year). Further details are described below.

The project will also include a practice ice rink, which will serve at times as a community ice facility. The arena and practice ice rink will be developed initially. As planned, the project may also include a basketball training facility that would be developed at a later date that would host a National Basketball Association (NBA) G League Team. This potential addition to the arena complex is also analyzed in this study.

The following provides a summary of characteristics of proposed events at the arena, including anticipated types and number of AHL games and non-AHL events, average game/event attendance, temporal description of games/events, and estimated arena event center day-of-game/event employment. Table 1.1 summarizes the types of events and the projected number of events with maximum attendance (sellout) and average (typical) attendance.

Table 1.1 Summary of Events and Projected Attendance Levels.

Type	*Level*	*Attendance*	*No. of Events*
Concert	Sell-Out Average	11,000 7,500	23 22 45 Total
AHL Game	Sell-Out Average	9,918 7,500	5 41 46 Total
Family	Maximum Average	5,000 4,000	19 19 38 Total
Other Sport	Maximum Average	10,000 7,000	2 8 10 Total
Other - Various	Maximum Average	3,000 800	10 10 20 Total
G League Game	Maximum Average	1,000 750	1 24 25 Total
			184 Total

Source: SoCal Arena Company, LLC.

<u>AHL Games:</u> The hockey season runs from October to May. There could be a total of up to 46 AHL games at the arena, which could comprise 1 to 4 pre-season games, 34 regular season games, and if the team reaches the post-season, between 1 to 8 playoff games. Maximum hockey seating capacity at the event center would be 9,918. The average game day attendance is estimated to be approximately 7,500 patrons during the regular season, for 41 games. A sellout attendance of 9,918 is anticipated five times a year. The majority of home games would start at 7:00 pm and run approximately 2.5 hours in duration. Home games would be evenly split between weekdays and weekends.

<u>Other Events:</u> The arena would provide a year-round venue for a variety of non-AHL events, including concerts, family shows, other sporting events, and conventions/corporate events. Up to 138 non-AHL game events could occur annually at the arena. These are described in more detail below.

<u>Concerts:</u> There would be an estimated 45 annual concerts at the arena, which would occur throughout the year. Such concerts would vary in attendance levels, depending on the artist and stage configuration. The estimated average attendance level would be approximately 7,500 patrons.

The arena design would allow for an end-stage concert configuration to accommodate a maximum of 11,000 patrons; this configuration would account for approximately 50% of concerts. Occasionally (1 to 2 times per year) concerts would occur in a full 360-degree center-stage configuration, which would allow for a maximum attendance of about 11,700 patrons. Concerts would typically occur on Friday and Saturday evenings within a 7:00 p.m. to 11:00 p.m. window.

Family Shows: There would be an estimated 38 annual family shows which would account for approximately 28% of non-AHL events. Family shows would occur year round and would provide theatrical entertainment geared towards children and families. Examples include Disney on Ice, Sesame Street Live, and Cirque Du Soleil. Family show series would typically occur over a 3-day block of time (Friday through Sunday) during which time as many as 3 performances would occur in the daytime and evening periods (2:00 – 5:00 pm, and 7:00 – 10:00 pm). The estimated average attendance at a family show would be 4,000 patrons, and maximum attendance would be 5,000 patrons.

Other Sporting Events: There would be an estimated 10 other sporting events annually, which would occur throughout the year. Examples of other non-AHL sporting events include basketball, boxing, mixed martial arts, and wrestling. These events could be professional, collegiate, amateur, high school/youth, local, regional, or international competitions. The estimated average attendance for other sporting events would be 7,000 patrons approximately 8 times a year, with an estimated maximum attendance of 10,000 about twice a year.

Other Events – Various: There would be an estimated 20 rental uses of the arena annually, which could occur throughout the year. This would include conventions, conferences, cultural events, and other events, with an estimated average attendance level of 800 patrons and maximum attendance for 3,000 patrons. For small attendance events, the arena's performance and seating areas could be configured, and event patron access could be managed, to create a smaller venue space and more intimate experience for the performances.

Community Ice Rink: The Training Center ice sheet would be open about nine months of the year (closed in the three summer months between June and August). It would be used about 50% of the time by the AHL team for practice. When not in use by the AHL team, the training ice rink would be available as a community ice facility on non-event days (approximately 135 days a year). It is anticipated that it would be open 7 days a week and for 6 to 8 hours per day, with typically 20 to 40 people using it per hour. It could be used for public skating sessions, skate/hockey lessons, or hockey leagues.

G League Basketball Facility: There would be an estimated 25 G League basketball games a year, which would occur on both weekdays and at weekends. These events would typically start at 7:00 pm. A maximum attendance of 1,000 patrons is expected once a year, with 24 games with average attendance of 750 patrons. As described above, a G League Basketball Training Facility may be added to the Arena complex at a later date. Due to the low attendance for these games and the focus of this analysis focused on higher attendance events, G League games are not directly analyzed.

Summary

There would be approximately 184 events a year. Of these about 30 events would have an attendance of between 10,000 and 11,000, about 71 would have an attendance of 7,000 to 7,500, and 83 events would have an attendance of 5,000 or less. There would be approximately 181 days per year when there would be no events at the arena (roughly half of the calendar year).

Opening Year and Project Phasing
The arena is expected to open in 2023. It would be built in one single phase.

Specific Plan Amendment

The current General Plan Land Use is:
Western Coachella Valley Area Plan – Business Park

The proposed General Plan Land Use is:
Western Coachella Valley Area Plan – Commercial Tourist

The Current Zoning is:
SP-343 NorthStar Specific Plan – Planning Area 8 (Business Park)

The Proposed Zoning is:
SP-343 NorthStar Specific Plan – Planning Area 11 (Arena and Event Venue)

1.3 Analysis Scenarios

This Transportation Study addresses the following conditions:

- Existing Conditions, 2020
- Existing + Ambient Growth + Project Conditions (EAP), 2023
- Existing + Ambient Growth + Project Conditions + Cumulative Conditions (EAPC), 2023

The analysis addresses opening day for the arena and meets the requirement of the Specific Plan to analyze each individual project phase of the Specific Plan. It allows determination of which, if any, of the Specific Plan roadway improvements should be attributable to the Arena Project.

Analysis Time Periods

For Purposes of Evaluating General Plan Consistency and Comparison to the 2006 EIR TS.

An AM Peak Hour analysis is not necessary for the arena event facility as there are negligible trips in that time period (see also Chapter 4).

The Traffic Operations Analysis addresses:

- Weekday PM Peak Hour (5:00 – 6:00 pm)

This is consistent with 2006 EIR Traffic Study PM peak hour analysis, and the analysis of Specific Plan land uses in that 2006 study. It is also consistent with the generally accepted practice and methodology for traffic studies to address the PM peak hour.

The study addresses the following event scenario in the PM peak hour:

- Average AHL Event, 7,500 attendance.

The Average AHL Event attendance covers approximately 80% of all events that would occur at the arena (see also Chapter 4). It is considered a conservative approach as traffic studies typically address average trips.

<u>For Purposes of Addressing a Transportation Management Plan (TMP)</u>

The arena would also generate trips in other hours than the PM peak hour. The highest number of arena trips would occur in the Pre-Event and Post-Event hours. Due to their transient nature, traffic operations for these hours for entertainment facilities like arenas and sports stadia are most typically addressed with Transportation Management Plans which contain temporary operational measures to efficiently facilitate the traffic flows, rather than physical roadway improvements (which would not be needed for non-event days or lower attendance events).

For the purposes of facilitating preparation of a TMP, the traffic analysis addresses the following scenarios:

- Pre-Event Hour (6:00 – 7:00 pm)
- Post Event Hour (9:30 – 10:30 pm for Average AHL Events, and 11:00 pm to 12:00 am for Sellout concerts)

These scenarios are addressed in Chapter 8 of this report.

Not all event types and/or attendance levels will need the same level of TMP measures. It is anticipated that the TMP will ultimately address the following three activity levels:

Level 3:	> 8,000 Attendance	Sellout Concert & AHL Game 20% of all events
Level 2:	5,000 to 8,000	Average Concert & AHL Game 45% of all events

Level 1:	< 5,000	All remaining events, maximum and average 35% of all events

TMP Analysis Scenarios

The study addresses the following scenarios with quantitative analysis:

- Weekday Pre-Event Hour Level 3 – Sellout Concert, 11,000
- Weekday Post-Event Hour Level 3 – Sellout Concert 11,000

This analysis is conducted for the purpose of identifying the types and locations of measures that would be necessary for the efficient management of temporary event traffic. This Transportation Analysis does not include a detailed TMP, which will be developed prior to opening of the facility, in order to reflect the most recent conditions at that time, and to allow for coordination between the arena and the various transportation agencies. Instead, based on a quantitative analysis, this Transportation Analysis provides an outline of potential measures for inclusion in the TMP. The analysis addresses the most common sellout scenario. However, the attendance at the majority of events would be lower, so the analysis in this report addresses the maximum level of TMP measures that may be necessary.

1.4 Study Area

Intersections

The study intersections are shown in Figure 1.4, and listed in Table 1.2. The study intersection locations are a combination of (a) the intersections studied in the 2006 Specific Plan EIR Traffic Study (for comparison purposes), and (b) arterial intersections where the Project would add 50 or more PM peak hour trips per the Riverside County Guidelines. Table 1.2 also shows the jurisdictional location of each study intersection.

Freeways

Freeway study locations address mainline segments, off-ramps, and merge/diverge areas, and were determined based on the anticipated approach and departure routes of project traffic and off-ramps and on-ramps that would be used by project traffic. Freeway study locations are shown in Figure 1.5 and listed in Table 1.3.

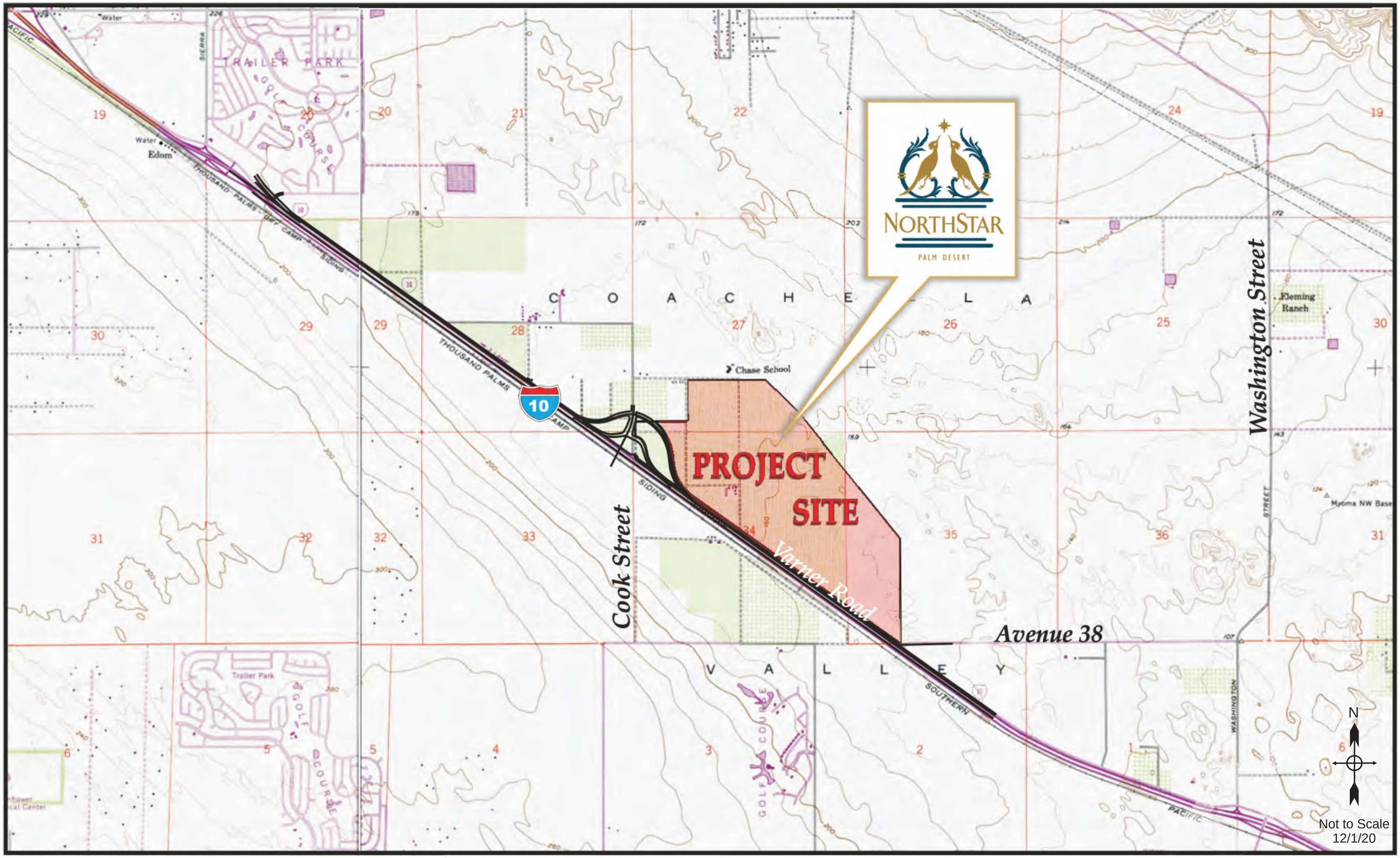
Table 1.2 Intersection Study Locations

No.	*Location*	*Status*	*Jurisdiction*
1	Monterey Avenue & Varner Road	In 2006 EIR	Riverside County
2	Monterey Avenue & I-10 EB Ramps	In 2006 EIR	Caltrans, Riverside County
3	Varner Road & Jack Ivy Drive	In 2006 EIR	Riverside County
4	Cook Street & Varner Road	In 2006 EIR	Riverside County
5	Cook Street & I-10 WB Ramps	In 2006 EIR	Caltrans, Riverside County
6	Cook Street & I-10 EB Ramps	In 2006 EIR	Caltrans, Riverside County
7	Cook Street & Gerald Ford Drive	In 2006 EIR	Palm Desert
8	Cook Street & Frank Sinatra Drive	Additional to EIR	Palm Desert
9	Cook Street & Country Club Drive	Additional to EIR	Palm Desert
10	Varner Road & Classic Club Blvd.	In 2006 EIR	Riverside County
11	Varner Road & Avenue 38	Additional to EIR	Riverside County
12	Varner Road & Berkey Drive	In 2006 EIR	Riverside County
13	Washington Street & Avenue 38	In 2006 EIR	Riverside County
14	Washington Street & Varner Road	In 2006 EIR	Riverside County
15	Washington Street & I-10 EB Ramps	In 2006 EIR	Caltrans, Riverside County
16	Washington St. & Country Club Drive	Additional to EIR	Palm Desert, Riverside Co.
17	Varner Road & I-10 WB Ramps	In 2006 EIR	Caltrans, Riverside County

Note that the intersection of Monterey Avenue & I-10 WB Ramps that was studied in the 2006 EIR no longer exists, as the ramps have since been reconfigured to include free flowing on ramps, so that intersection is not analyzed.

Table 1.3 Freeway Study Locations

Type	*No.*	*Location*
Mainline Segments	1	I-10 west of Cook Street, Eastbound
	2	I-10 west of Cook Street, Westbound
	3	I-10 east of Cook Street, Eastbound
	4	I-10 east of Cook Street, Westbound
	5	I-10 east of Washington Street, Eastbound
	6	I-10 east of Washington Street, Westbound
Off-Ramps	1	I-10 Eastbound Off-ramp at Cook Street
	2	I-10 Westbound Off-ramp at Cook Street
	3	I-10 Westbound Off-ramp at Washington Street
Merge/Diverge Areas	1	I-10 Eastbound off-ramp at Cook Street (diverge)
	2	I-10 Westbound on-ramp at Cook Street (merge)
	3	I-10 Westbound off-ramp at Cook Street (diverge)
	4	I-10 Eastbound on-ramp at Cook Street (merge)
	5	I-10 Westbound off-ramp at Washington Street (diverge)
	6	I-10 Eastbound on-ramp at Washington Street (merge)

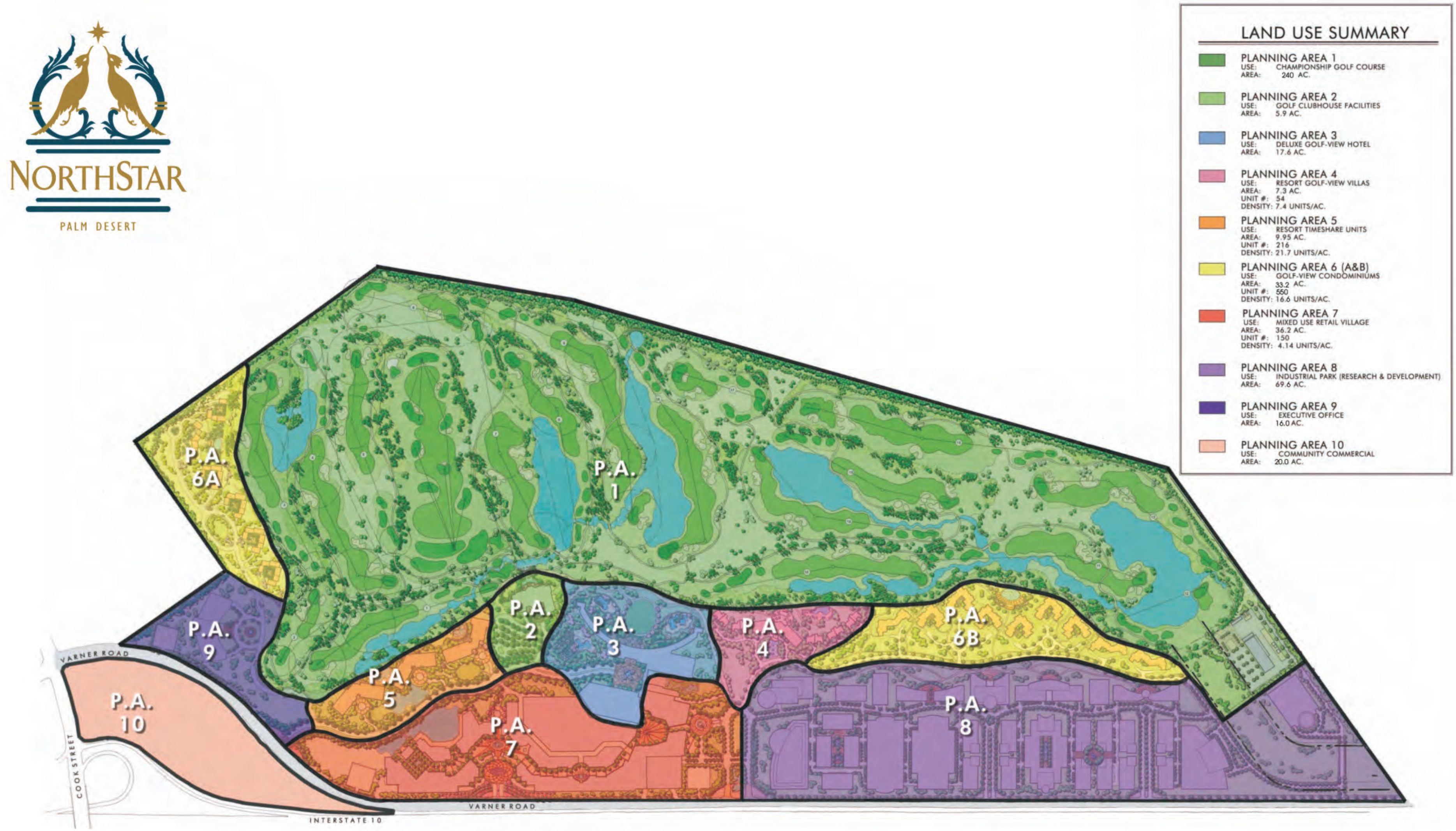


Source: The Altum Group

Figure 1.1
Project Location

Riverside County Arena

The **Mobility** Group
Transportation Strategies & Solutions



Source: The Altum Group

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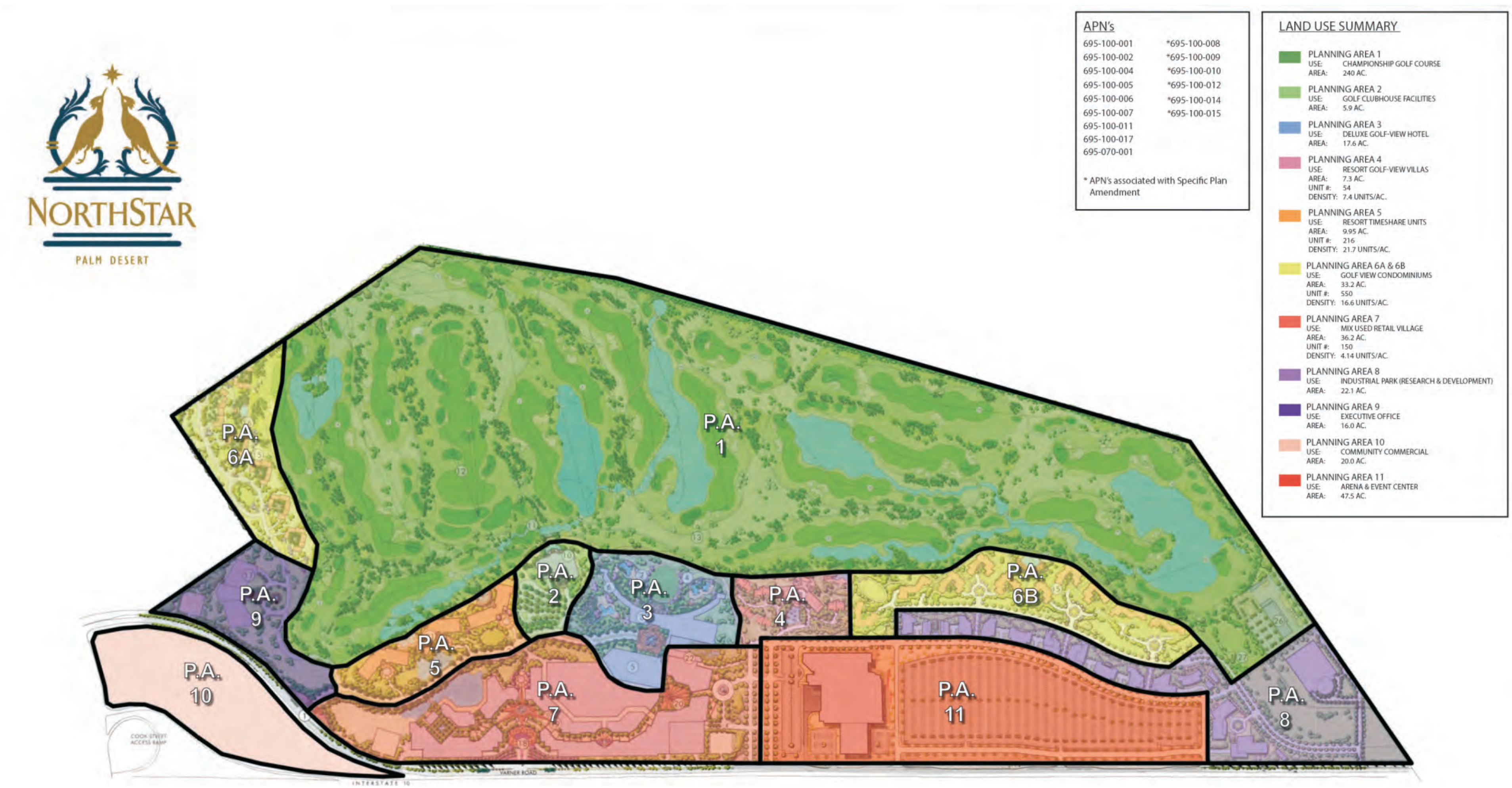
Figure 1.2
Approved Specific Plan Concept

Riverside County Arena

The **Mobility** Group
Transportation Strategies & Solutions



Source: The Altum Group

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Figure 1.3
Amended Specific Plan Concept

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

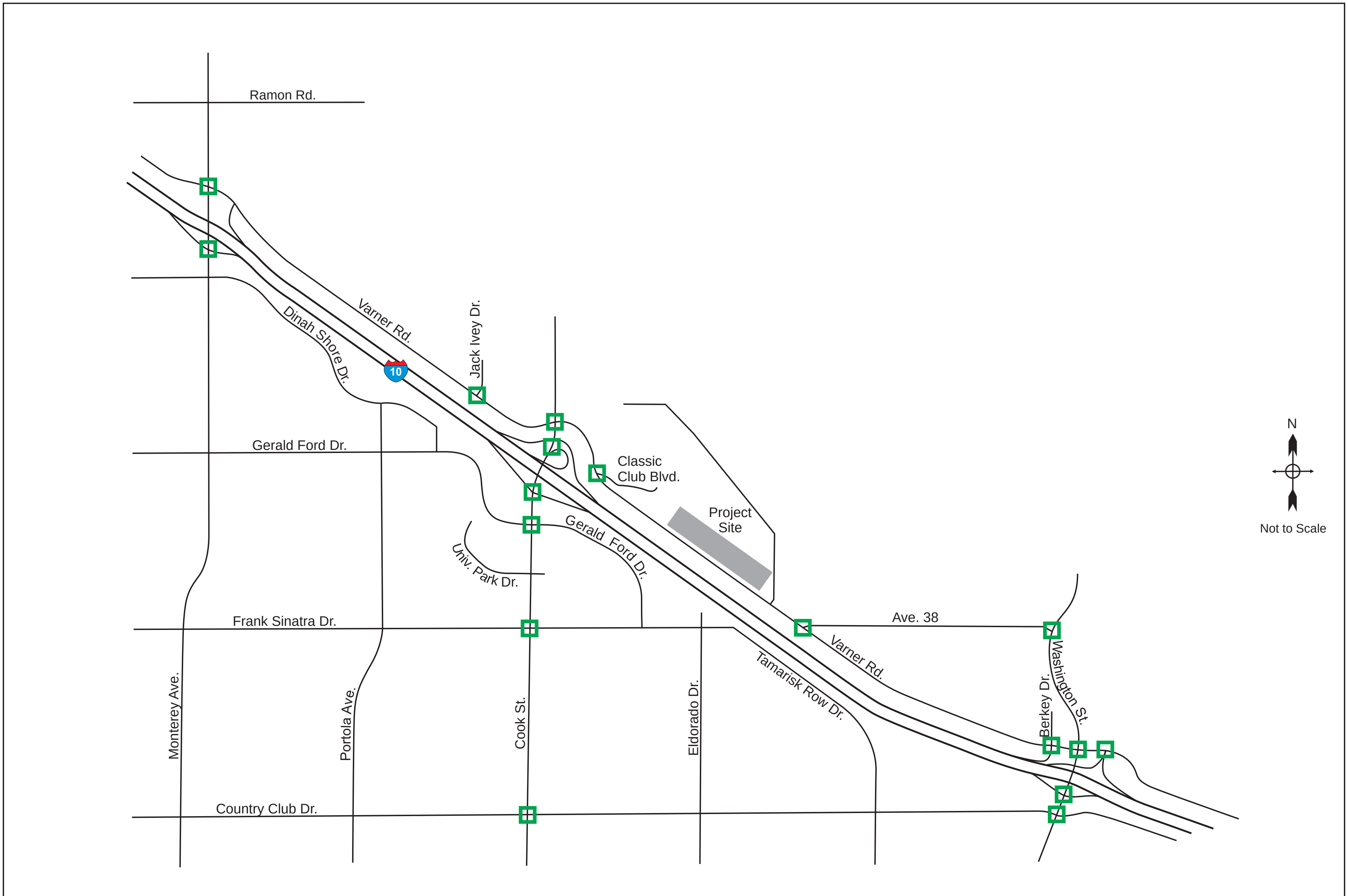

Figure 1.4
Study Intersections

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

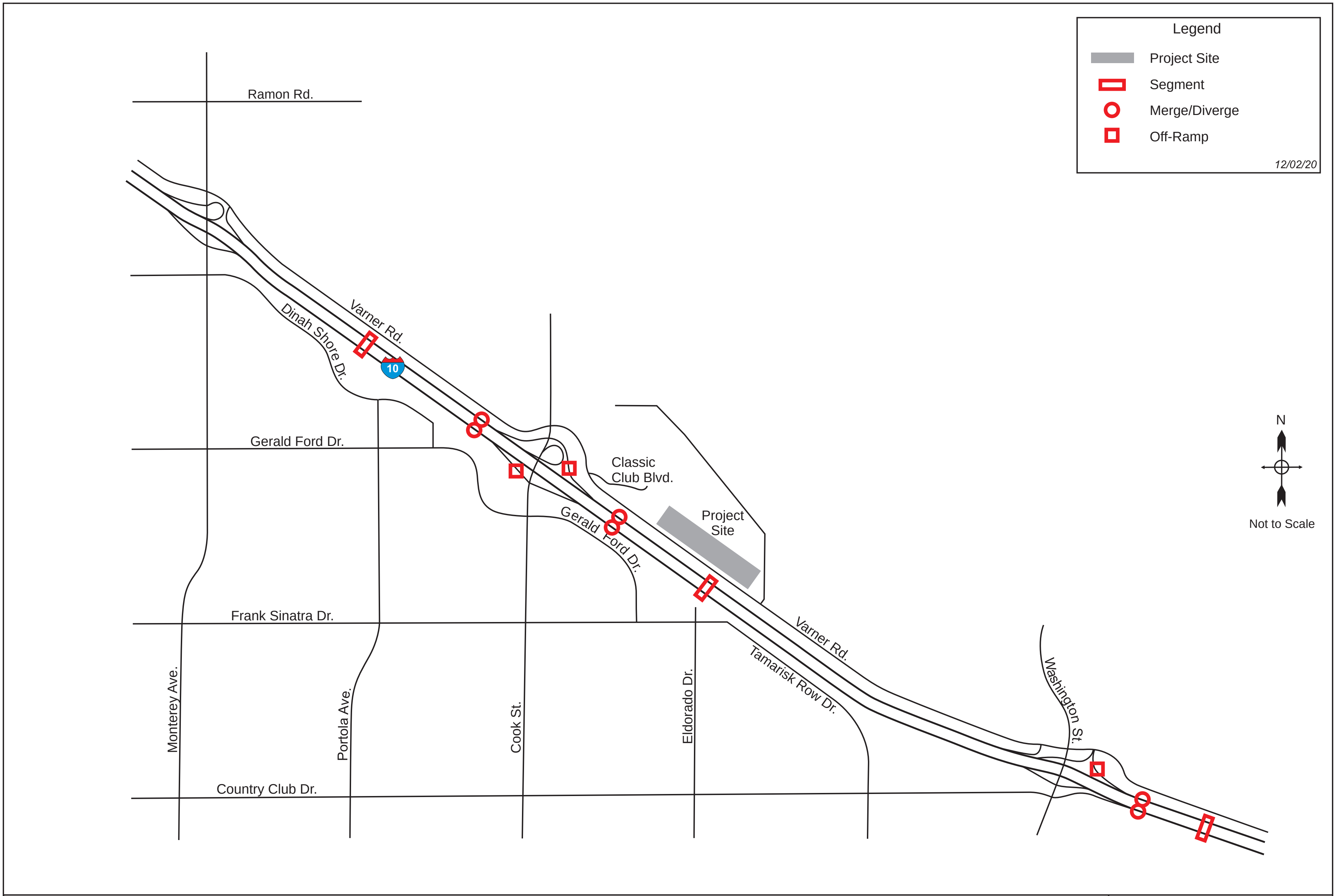

Figure 1.5
Study Freeway Locations

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

2. METHODOLOGY

This chapter documents the methodologies and analysis parameters used in this study. The methodology follows the Transportation Analysis Guidelines of Riverside County. It is defined in an approved Scoping Agreement with the County of Riverside, shown in Appendix T.

2.1 Intersections

The intersection analysis calculates average vehicle delay, which is then related to an overall level of service (LOS) for the intersection. LOS ranges from LOS A (free-flow conditions) to LOS F (breakdown of flow resulting in stop-and-go conditions). Intersections are analyzed using the Highway Capacity Manual[1] (HCM 6) methodologies. The Vistro (Version 7) software was used to analyze signalized and unsignalized intersections, including those in the County of Riverside and the City of Palm Desert, as well as freeway ramp intersections. Table 2.1 shows the breakdown description of level of service for signalized intersections. Table 2.2 shown the breakdown of level of service for unsignalized intersections. The analyses utilize signal timing plans obtained from the County of Riverside, Caltrans, and the City of Palm Desert. The intersection analyses also utilize a peak hour factor obtained from the traffic counts to represent the peak 15 minutes within the peak hour. Other analysis parameters were used per the County of Riverside Transportation Analysis Guidelines[2].

The study intersections include 14 signalized intersections and 3 unsignalized intersections. The analysis of unsignalized intersections included a traffic signal warrant analysis (using the Warrants 10 software) to determine if signalization would be warranted.

2.2 Freeways

The freeway system is analyzed for the following facilities:

- Freeway Mainline Segments
- Freeway Off-Ramps
- Freeway Merge/Diverge Areas

The freeway mainline analysis utilizes the HCM 6 methodology and uses the HCM-CALC software. The analysis is based on density (passenger cars per mile per lane) to determine level of service. Table 2.3 shows the breakdown and description of levels of service for the freeway mainline.

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[1] *Highway Capacity Manual (HCM) 6th Edition*. Transportation Research Board, National Academy of Sciences, 2016.
[2] *Transportation Analysis Guidelines for Level of Service and Vehicle Miles Travelled,* Riverside County Transportation Department, December, 2020.

Table 2.1 Signalized Intersection Levels of Service

Average Control Delay (Secs / Veh)	*Level of Service (LOS)*	*Description*
0 to 10.00	A	Operations with very low delay occurring with favorable progression and/or short cycle lengths. Most vehicles travel arrive during green and travel through the intersection without stopping.
10.01 to 20.00	B	Operations with low delay occurring with highly favorable progression and/or short cycle lengths. More vehicles stop than with LOS A.
20.01 to 35.00	C	Operations with average delays with favorable progression and/or longer cycle lengths. Individual cycle failures begin to appear. More vehicles have to stop but many vehicles still pass through without stopping.
35.01 to 55.00	D	Operations with longer delays, high volume/capacity (V/C) ratios and ineffective progression or long cycle lengths. Many vehicles stop and individual cycle failures are noticeable.
55.01 to 80.00	E	Operations with high delays, high V/C ratios. unfavorable progression, and long cycle lengths. Individual cycle failures are frequent occurrences.
80.01 and greater	F	Operations with very high delays, high V/C ratios, unfavorable progression, and long cycle lengths. Most cycle fail to clear the queue.

Source: HCM 6

Table 2.2 Unsignalized Intersection Levels of Service

Average Control Delay (Secs / Veh)	*Level of Service (LOS)*	*Description*
0 to 10.00	A	Few traffic delays
10.01 to 15.00	B	Short traffic delays
15.01 to 25.00	C	Average traffic delays
25.01 to 35.00	D	Long traffic delays
35.01 to 50.00	E	Very long traffic delays
50.01 and greater	F	Extreme traffic delays

Note: Delays for controlled approach(s). Source: HCM 6

Table 2.3 Freeway Mainline Levels of Service

Level of Service	*Density Range (cars/mi/ln)*	*Description*
A	0.0 – 11.0	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.
B	11.1 – 18.0	Reasonably free flow operations. Vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.
C	18.1 – 26.0	Traffic flow at near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service quality will be substantial. Queues may be expected to form behind significant blockages.
D	26.1 – 35.0	Speeds begin to decline with increasing flows, and densities increase more quickly. Freedom to maneuver is seriously limited. Minor incidents can be expected to create queueing as the traffic stream has little space to absorb disruption.
E	35.1 – 45.0	Operation at or near capacity. Virtually no usable gaps in the traffic stream with little room to maneuver. Any disruption in the traffic stream can establish a disruptive wave that propagates throughout the upstream traffic stream. Incidents can be expected to produce a serious breakdown and substantial queuing.
F	> 45.0	Uneatable flow. Breakdowns in vehicle flow can occur for a number of reasons. And cause substantial queuing.

Source: HCM 6

Freeway mainline traffic data was obtained from the Caltrans Performance Management System (PeMS). Data from October 2019 was used (most recent available) and increased by 2% to reflect 2020 conditions.

The freeway merge/diverge areas addressed the segments on the freeway where off-ramps diverge from the mainline and where on-ramps merge with the mainline. Levels of service are expressed in passenger cars per mile per lane (cars/mi/lane). Table 2.4 shows the breakdown and descriptions of levels of service. Traffic data was obtained from the mainline volumes and the ramp volumes from the intersection counts. The analysis used the HCM 6 methodology and the HCM-CALC software. The freeway off-ramps analysis addresses off-ramp queuing to address the potential for queues on an off-ramp to extend back to the mainline freeway. The analysis calculates the 95th percentile queue, and calculates the ramp storage capacity from the off-ramp intersection to the

Table 2.4 Freeway Merge/Diverge Levels Of Service

Level of Service	*Density Range (cars/mi/lane)*
A	10.00 or less
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand exceeds capacity

Source: HCM 6

gore point with the mainline. Off-ramp traffic volumes were obtained from the intersection traffic counts. The analysis uses the HCM 6 methodology and the Vistro software.

2.3 General Plan Level of Service Standard

Section 15064.3, Determining the Significance of Transportation Impacts, added to the CEQA Guidelines to implement SB 743, effective on July 1, 2020, states that analysis of vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts and, for this reason, roadway level of service should no longer be used to determine significant transportation impacts. VMT is the amount and distance of automobile travel attributable to a project. Analysis of the VMT impacts of the proposed Specific Plan Amendment was completed in a separate study, Northstar Specific Plan EIR Addendum VMT Analysis Memo, Fehr & Peers, February, 2021. This analysis compared the annualized VMT that would be generated by the uses allowed by the Adopted Northstar Specific Plan and the proposed Specific Plan Amendment. It concluded the proposed Specific Plan Amendment annualized VMT would be within 1% of the annualized VMT generated by the Adopted Specific Plan. Based on this analysis, the proposed Specific Plan Amendment will not result in significant transportation impacts.

While roadway level of service (LOS) is no longer used to determine the significance of transportation impacts, the Riverside County General Plan defines level of service targets to assess the performance of a street or highway system and the capacity of a roadway to ensure the County provides and maintains a highway system with adequate capacity and acceptable levels of service to accommodate projected travel demands associated with buildout of the Land Use Element. Analysis of the level of service of the roadway network is provided to determine the consistency of the proposed Specific Plan Amendment with the General Plan.

The County of Riverside General Plan Policy C.2.1 states that *"the following minimum target levels [of service] have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system".*

"LOS D shall apply to all development proposals located within . . . The Western Coachella Valley Area Plan (WCVAP)".

Because the project site is located within the WCVAP the LOS D standard applies. And was used for the PM peak hour analysis However, unlike residential and commercial development which generate trips on a regular and recurring basis, arena events do not occur every day, but instead are irregular and temporary in nature. Arena traffic generation occurs during short time periods before and after events, outside the peak hours, and, in the case of the Post-Event hour, occur late in the evening, and do not represent typical everyday roadway operating conditions. The County LOS standards are applied to everyday roadway operations throughout the year, and are focused on the morning and evening peak hours. There are no County LOS standards applicable to the temporary traffic conditions with special events. While the County LOS standards were used for the pre-event and post-event hours analysis, they are not strictly appropriate for arenas.

Improvement measures are identified that more appropriately focus on temporary traffic control and management measures to control traffic operations for the few hours of an event (e.g. a Transportation Management Plan), rather than on permanent physical transportation improvements (e.g. street improvements). Physical infrastructure improvements would be unnecessary at all non-event times and would go largely unused at those times. The focus on utilizing TMP is the common approach that is used for event facilities across the country. For the reasons identified above, and given the intermittent nature and short duration of peak arena traffic (i.e., two hours per event - the pre-event and post-event hours) "improvement" measures for pre-event and post-event hours has focused on TMP measures to achieve a temporary LOS E or better. See also further discussion in Chapter 8.

As the freeway off-ramp intersections in the study area are located in the County of Riverside, the County thresholds are used for intersections that include freeway off-ramps.

City of Palm Desert

The City of Palm Desert General Plan has a designated circulation network and a roadway typology with roadway cross sections for each roadway type (described in Chapter 3). The General Plan does not include level of service performance standards or thresholds.

Caltrans

Since the enactment of SB 743, Caltrans has released new transportation study guidelines[3] that no longer focus on traffic on roadways and levels of service, but determines CEQA transportation impacts based on VMT. These guidelines have replaced the 2002 Guidelines. In addition to

[3] *Guidelines for the Preparation of Traffic Impact Studies, State of Californian Department of Transportation, 2002*).

assessing VMT, Caltrans has also focused on the evaluation of off-ramps and the potential for off-ramp queues to back up to the mainline freeway and potentially causing a hazard. As the off-ramp intersections in the study are located in the County of Riverside, the County thresholds are used for intersections that include freeway off-ramps.

2.4 Performance Standards

As described earlier, the following discussion is for the purposes of assessing the performance of the roadway network in relation to the level of service policy in the General Plan Circulation Element

.

County of Riverside

The Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled[4] states the following:

"Consistent with the acceptable LOS in the Riverside County General Plan, the Transportation Department considers the following criteria for application in the Transportation Assessment to identify infrastructure improvements required to provide acceptable operations. Note that this [LOS] analysis will be completed to demonstrate general plan consistency. Specific CEQA thresholds are based on VMT and shall be the sole basis for determining CEQA related transportation impacts".

"Operational improvements would be required under the following conditions:

1. *When existing traffic conditions exceed the General Plan target LOS.*
2. *When project traffic, when added to existing traffic will deteriorate the LOS to below the target LOS.*
3. *When cumulative traffic exceeds the target LOS".*

"Improvements may be provided through the TUMF network (or other funding mechanisms), project conditions of approval or other implementing mechanisms. The General Plan allows the Board of Supervisors to approve development projects even when the target LOS is exceeded, if the project has overriding benefits. Examples include projects that provide jobs in a local area, projects that provide needed transportation improvements that otherwise would not be constructed, projects that provide habitat conservation, projects that implement non-motorized transportation systems, or projects that provide some unique benefits to the County which outweigh the traffic deficiencies. These projects are required to provide operational improvements to the extent it is economically feasible as determined by the Board of Supervisors, based on a value engineering analysis".

[4] *Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled.* County of Riverside, December 2020.

City of Palm Desert

Because the City has no defined level of service standards in its General Plan, intersections in Palm Desert are reviewed in the context of consistency with applicable policies in the General Plan. The need for additional improvements is identified if the traffic conditions would not be consistent with, or could not be accommodated by, the City's Circulation Plan and identified roadway typology cross sections.

Caltrans

As discussed above, Caltrans currently focuses on evaluating safety conditions on off-ramps, to address whether off-ramp queues could potentially back up to the mainline freeway and impact the mainline freeway lanes. For this reason the freeway analysis reports on mainline segment and merge/diverge segment levels of service, and focuses on off-ramp queue analysis with respect to deficiency analysis. The need for additional improvements is based on whether the queue on the off-ramp backs to the ramp gore point with the mainline (i.e., would back into the mainline traffic lane), potentially causing a hazard.

2.5 Context for Consistency Analysis

Level of Service Standards

The Riverside County General Plan LOS standards discussed above apply to everyday roadway operations throughout the year. However, arena events do not occur every day, and instead are sporadic and temporary in nature, with traffic occurring only during short time periods before and after events. Arena events, therefore, do not represent typical roadway operating conditions. However, while the County performance standards may not strictly apply for arenas, they were used in this study for the PM peak hour analysis to provide a more conservative approach to the analysis.

Frequency of Arena Events

Unlike regular development projects for which activity occurs every weekday, events at the arena would occur only on certain days. The analysis has addressed an average AHL game attendance of 7,500 patrons. Based on the event descriptions in Chapter 1, there would be approximately 71 events per year that would occur with an attendance at that level. There would also be approximately 30 events with a higher attendance of up to 11,000 patrons (addressed under the TMP analysis in Chapter 8), for a total of 101 events with attendance of 7,500 patrons or greater. It is projected that half of the events would occur on weekdays, or approximately 50 events. The traffic conditions described in the analysis would therefore not occur every weekday, but only would occur on approximately 19% of weekdays throughout the year.

3. EXISTING CONDITIONS

This chapter provides a description of the existing transportation system and existing transportation conditions in the study area. The study area includes intersections located in both the County of Riverside and the City of Palm Desert.

3.1 Study Area Transportation Network

County of Riverside

Figure 3.1 shows the current County of Riverside General Plan Circulation Element in the area of the Project. Figure 3.2 shows the currently adopted roadway cross sections in the County's General Plan. Figure 3.3 shows the County of Riverside County Trails and Bikeways System in the area of the Project.

City of Palm Desert

Figure 3.4 shows the City of Palm Desert General Plan Circulation Element. Figure 3.5 shows the currently adopted roadway cross sections in the City's General Plan. Figure 3.6 shows the City of Palm Desert Bike & Golf Cart Routes.

Study Intersections

The study area includes a total of 17 intersections as determined in conjunction with the County of Riverside. The study area and study intersections locations are shown in Figure 3.7. Table 3.1 lists the intersections by jurisdiction. Figure 3.8 shows the existing lane configurations and traffic control at study intersections.

Bicycle and Pedestrian Facilities

The Project site is located on the north side of the I-10 Freeway. Varner Road adjacent to the project site is fully improved to County roadway standards, with a sidewalk on the north side adjacent to the site, which extends north to Cook Street and south to Avenue 38. There is currently no sidewalk on the south side of Varner Road, as there are no adjacent land uses and the I-10 Freeway is immediately adjacent. There is currently little if any pedestrian activity in the vicinity of the site.

There are currently no bicycle facilities in the vicinity of the project site. Further from the Project site (approximately two to three miles) there are bike lanes in the County of Riverside on Washington Street north of Varner Road, and in the City of Palm Desert on Frank Sinatra Drive, Cook Street south of Frank Sinatra Drive, and Country Club Drive at Cook Street.

Transit Service

The study area is served by the Sunline Transit Agency. The Sunline Transit route map is shown in Figure 3.9. There are no existing transit routes serving the Project site. The nearest routes are the following. Route 20 Express runs from southwest Palm Desert to Desert Hot Springs along Cook Street and the I-10 Freeway, approximately 1.4 miles from the Project site. The service runs on weekdays only, on an hourly frequency between 7:00 am to 10:00 am and 4:00 pm to 7:00 pm. Route 21 runs from southwest Palm Desert to Cook Street and Gerald Ford Drive along Cook Street, approximately 1.5 miles from the Project site. The service runs hourly on weekdays only, between 11:00 am and 3:00 pm.

3.2 Existing Traffic Counts

Normally new traffic counts are conducted for traffic studies to obtain the most recent information. However in 2020 the COVID-19 global pandemic (the "Pandemic") dramatically changed travel patterns, particularly with many people working from home rather than commuting to jobs. This has affected both traffic volumes and traffic patterns, so current data are not necessarily reliable indicators of normal traffic levels and patterns. For this reason, in agreement with the County of Riverside, it was determined that the most recent traffic counts from previous years before the Pandemic could be used where available, as being the most reliable source. Traffic counts from 2019 were used for four locations along Cook Street between the I-10 Freeway interchange and County Club Drive. These counts were adjusted upward by 2% to represent one year of ambient growth and 2020 conditions. Traffic counts from 2017 at five locations along Varner Road were used, and adjusted upward by 6% to represent three years of ambient growth and 2020 conditions. Otherwise new traffic counts were taken at all study intersections in early November 2020. The 2020 counts were compared to the 2019 counts for the four intersections along Cook Street to determine the potential effect of the Pandemic on traffic volumes. It was found that on average for these four intersections, the 2019 pre-Pandemic counts were 36% higher than the 2020 counts. The 2020 counts for those locations where 2017 or 2019 counts were not available were therefore factored up by 1.36 to estimate 2020 as pre-Pandemic conditions. These adjusted counts were used as the baseline for the traffic operations analysis.

Traffic counts for the mainline freeways were obtained from the most recent Caltrans PeMS (Performance Measurement System) data source, for October 2019. These were adjusted upward by 2% to represent one year of ambient growth and 2020 conditions. Traffic counts for freeway ramp volumes were obtained from the adjusted intersection counts (as described above).

The intersection traffic counts are shown in Appendix A.

3.3 Existing Conditions - Intersections

Study intersections were analyzed for the PM peak hour, per the methodology described in Chapter 2. Existing traffic volumes at study intersections are shown in Figure 3.10. The intersection analysis is summarized in Table 3.2 which shows the LOS for each intersection. The LOS results are also shown in Figure 3.11. LOS worksheets are shown in Appendix B. Based on the results in Table 3.2, all intersection are currently operating at LOS D or better, and there are no intersections that currently require improvements to maintain acceptable operating conditions as defined by the General Plan.

Signal Warrant Analysis

As no current deficiencies have been identified in the analysis of existing conditions, there is no need for traffic signal warrant analyses.

3.4 Recommended Improvements – Existing Conditions

As there are no current inconsistencies with respect to the General Plan performance standards, there is no need for any recommended improvements.

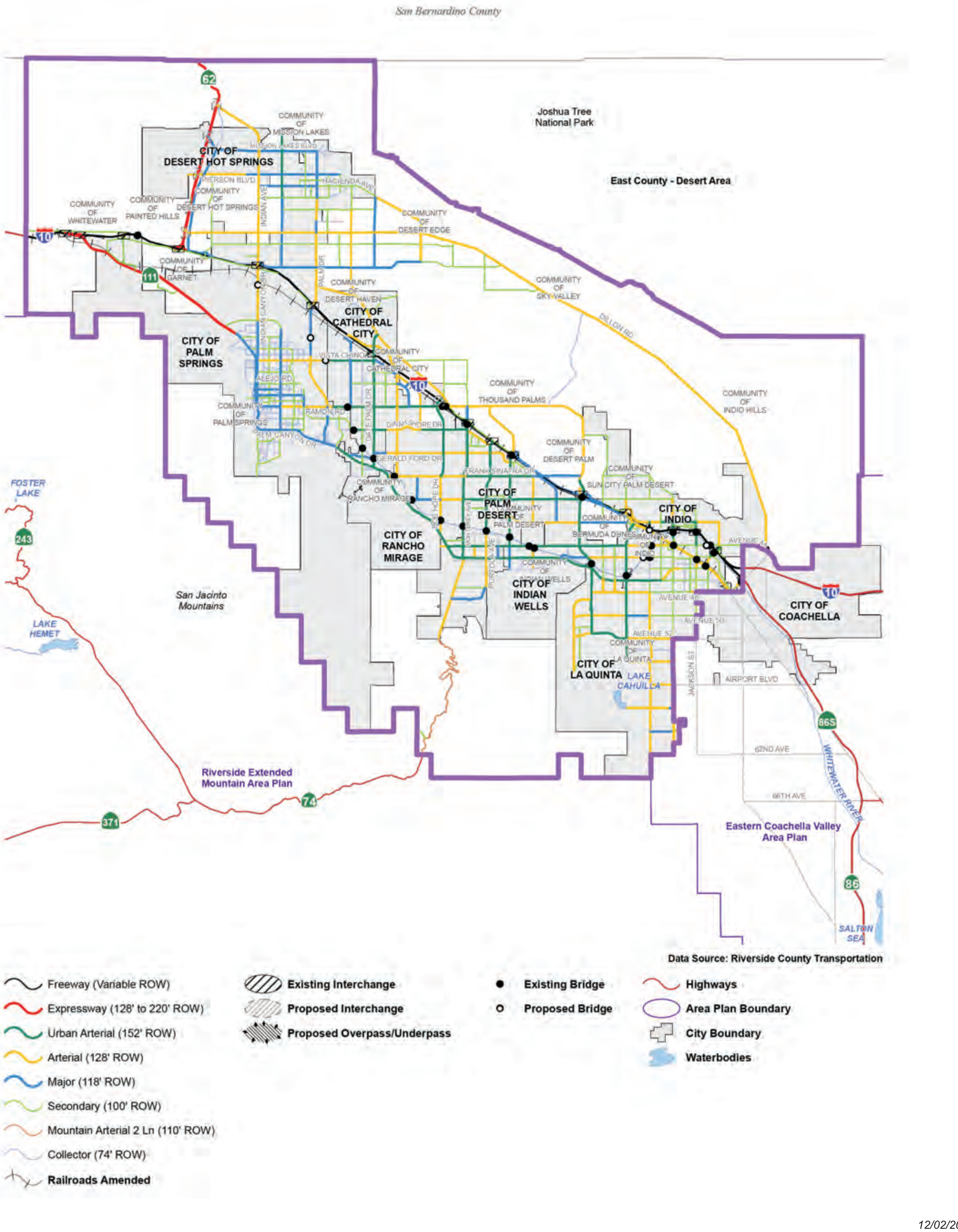
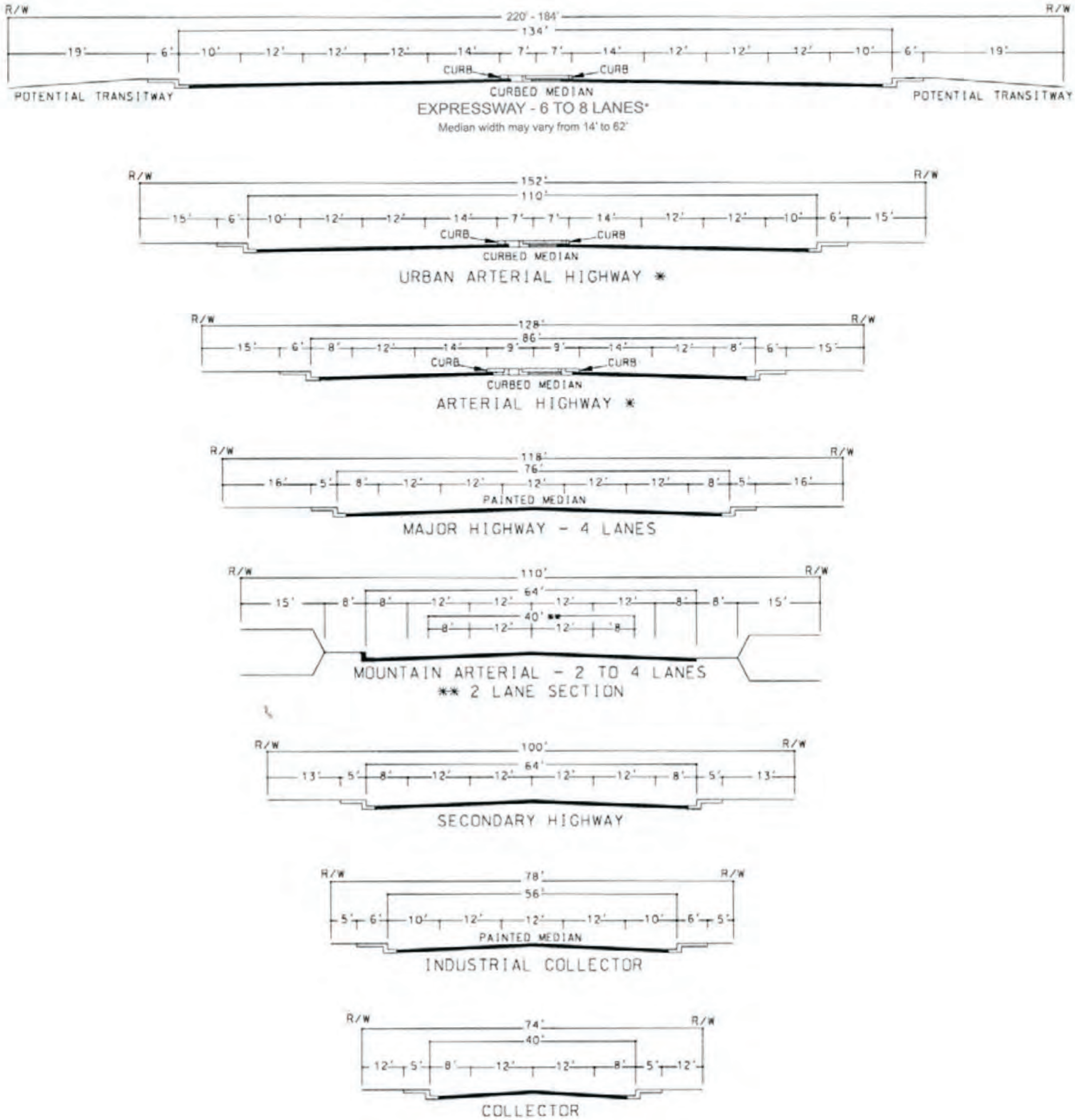


Figure 3.1
County of Riverside General Plan Circulation Element

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

GENERAL PLAN ROADWAY CROSS SECTIONS



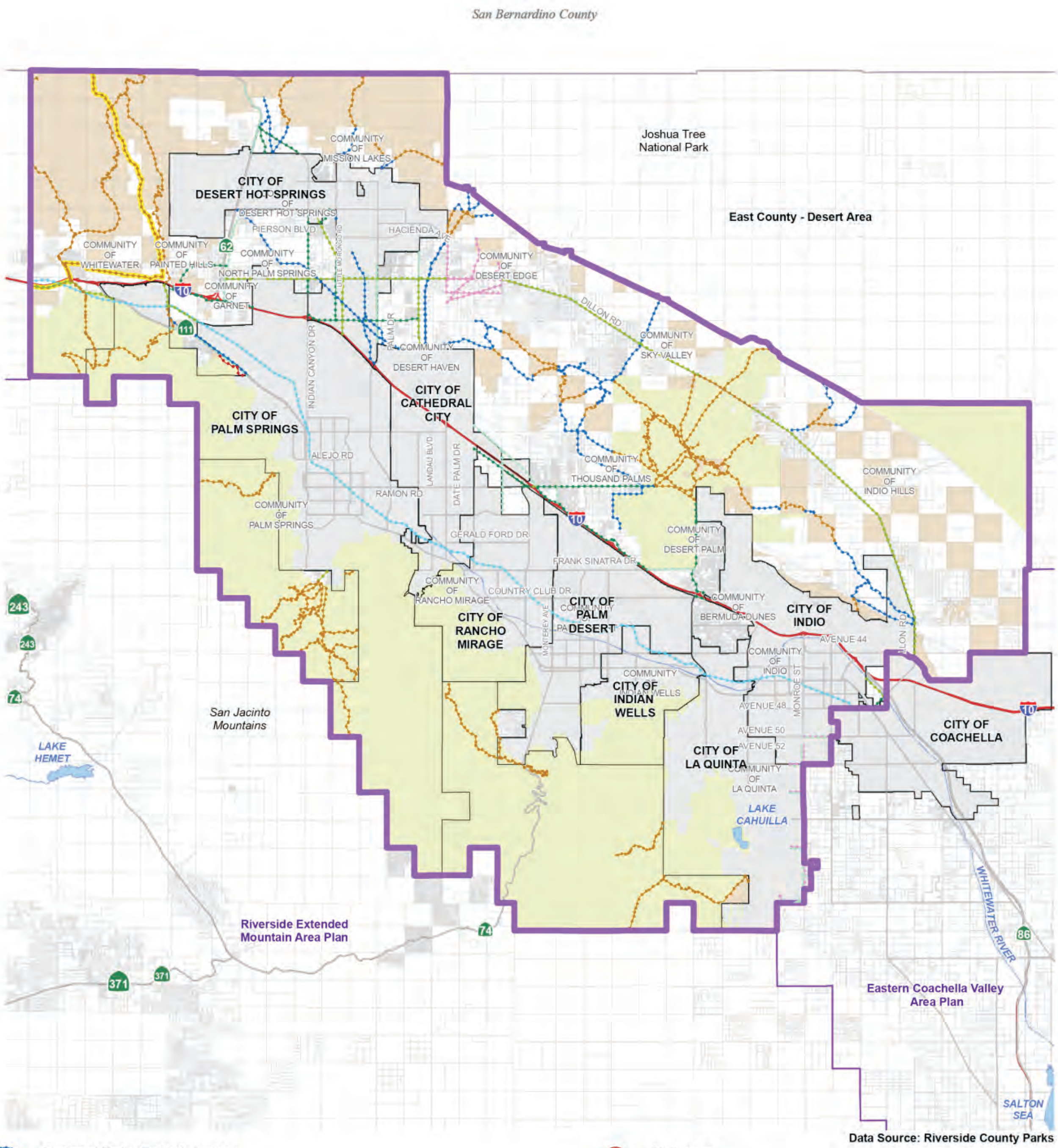
*IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE. ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

Revised 7/3/2003

12/02/20

Figure 3.2

County of Riverside Roadway Cross Sections



Regional Trail: Urban/Suburban
Community Trail
Combination Trail (Regional Trail / Class I Bike Path)
Class I Bike Path
Class II Bike Path
Design Guidelines Trail
Historic Trail (Southern Immigrant Trail, Juan Bautista De Anza National Historic Trail)
Non-County Trail (Public and Quasi-Public Lands)
California Riding & Hiking Trail
Miscellaneous Public Lands
Bureau of Land Management (BLM) Lands

Highways
Area Plan Boundary
City Boundary
Waterbodies

Note: Trails shown in non-county jurisdictions for informational/coordination purposes only.

Data Source: Primarily Riverside County Regional Park and Open Space District, with assistance from Riverside County TLMA/Transportation and Planning Departments, Riverside County Economic Development Agency, and other local, state, and federal recreational services agencies.

Note: Trails and bikeway maps are a graphic representation identifying the general location and classification of existing and proposed trails and bikeways in the unincorporated area of the County. All questions regarding precise alignment or improvement standards should be referred to the Riverside County Regional Park and Open Space District.

Note: Except for major regional facilities, trails and bikeways systems located within cities are generally not shown. Where trails and bikeways exist or are planned in the unincorporated area in such a manner that there are opportunities for connections with existing or planned trails and bikeways within adjacent cities, an arrow symbol is used to show the approximate location of the intended connection opportunity. The reader should contact the appropriate city for all information about that city's existing or planned trails and bikeways systems.

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Figure 3.3
Riverside County General Plan – Trails & Bikeways System

Riverside County Arena

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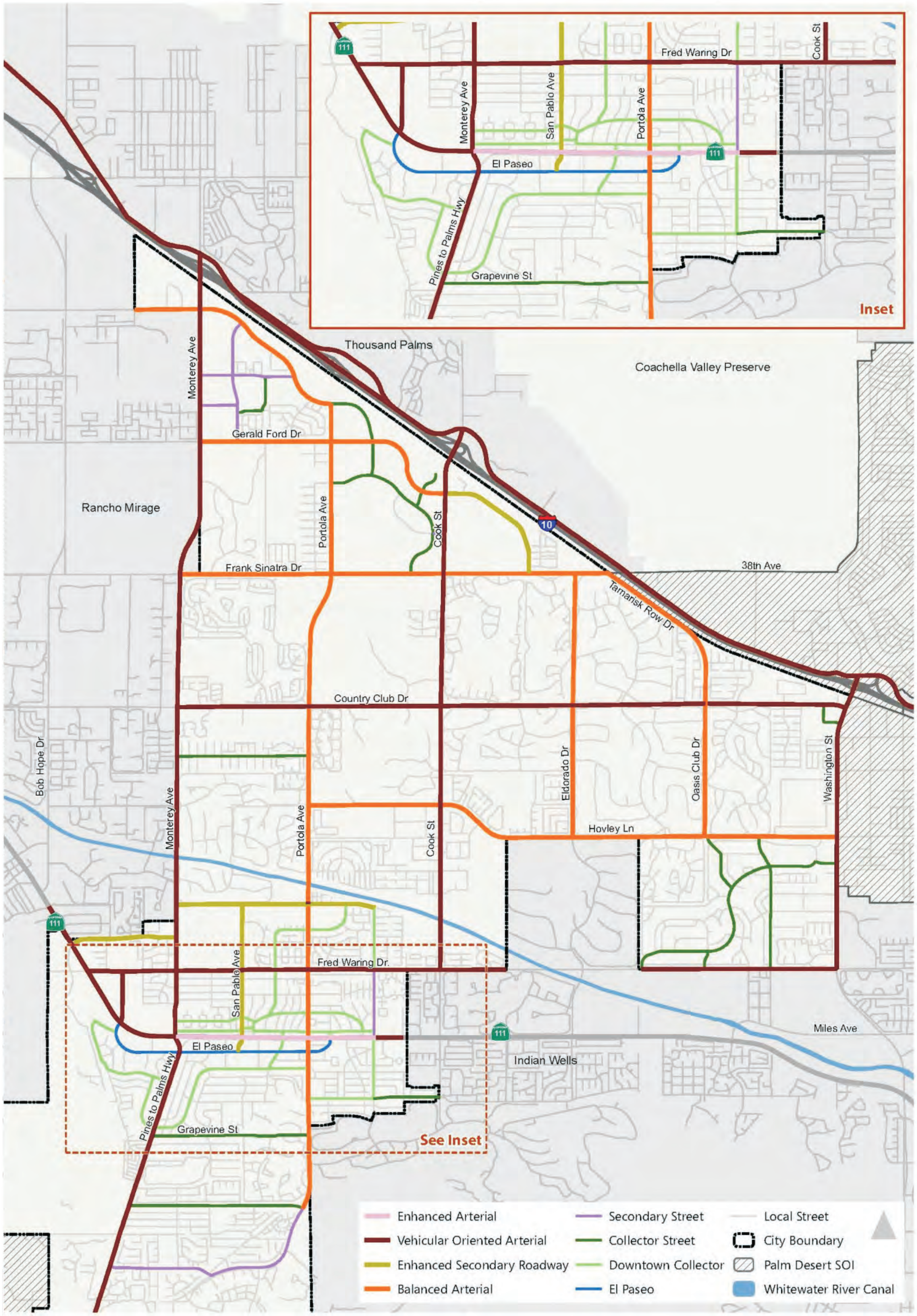

Figure 3.4
City of Palm Desert General Plan Circulation Network

Riverside County Arena

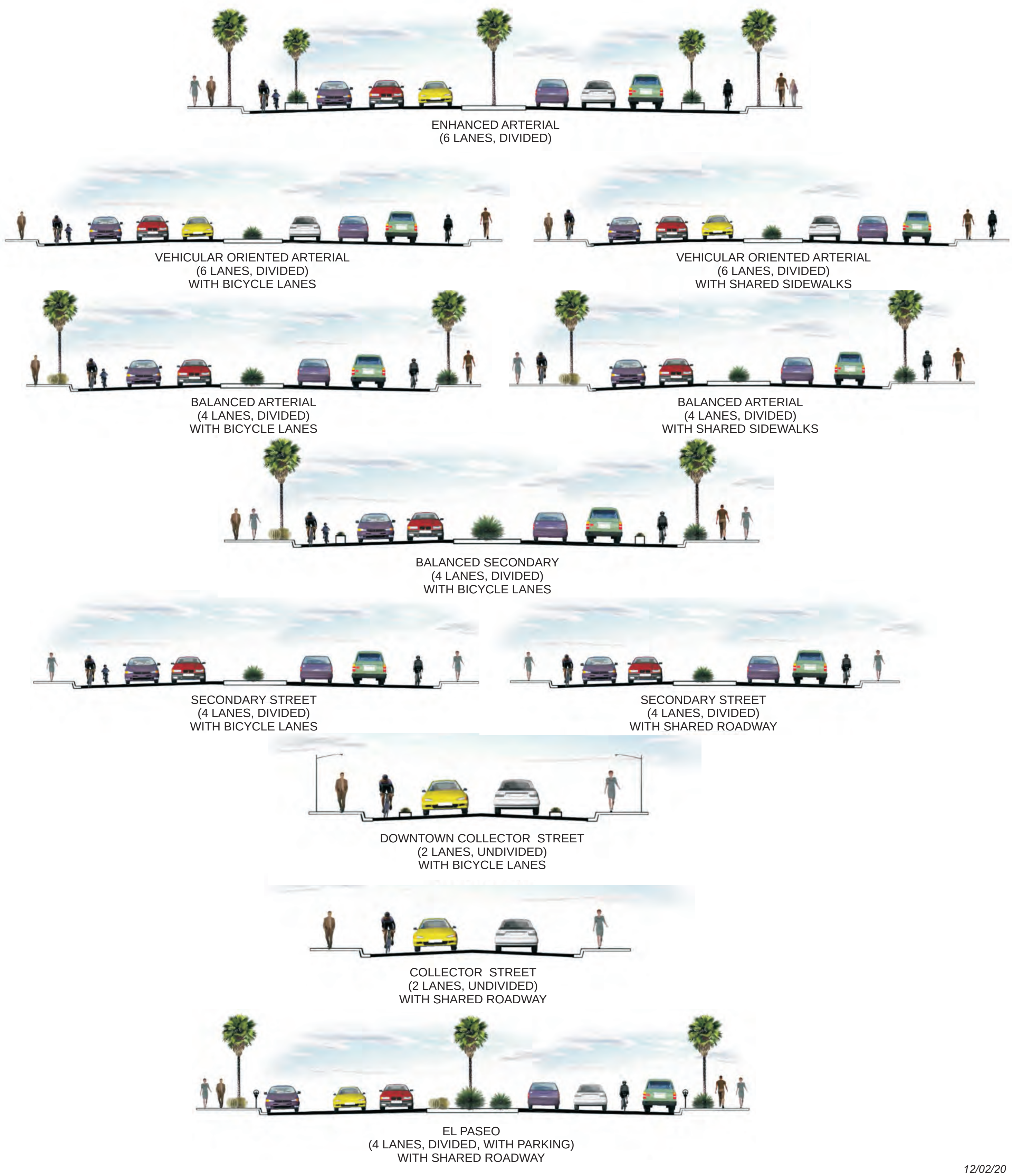

Figure 3.5

City of Palm Desert General Plan Roadway Cross Sections

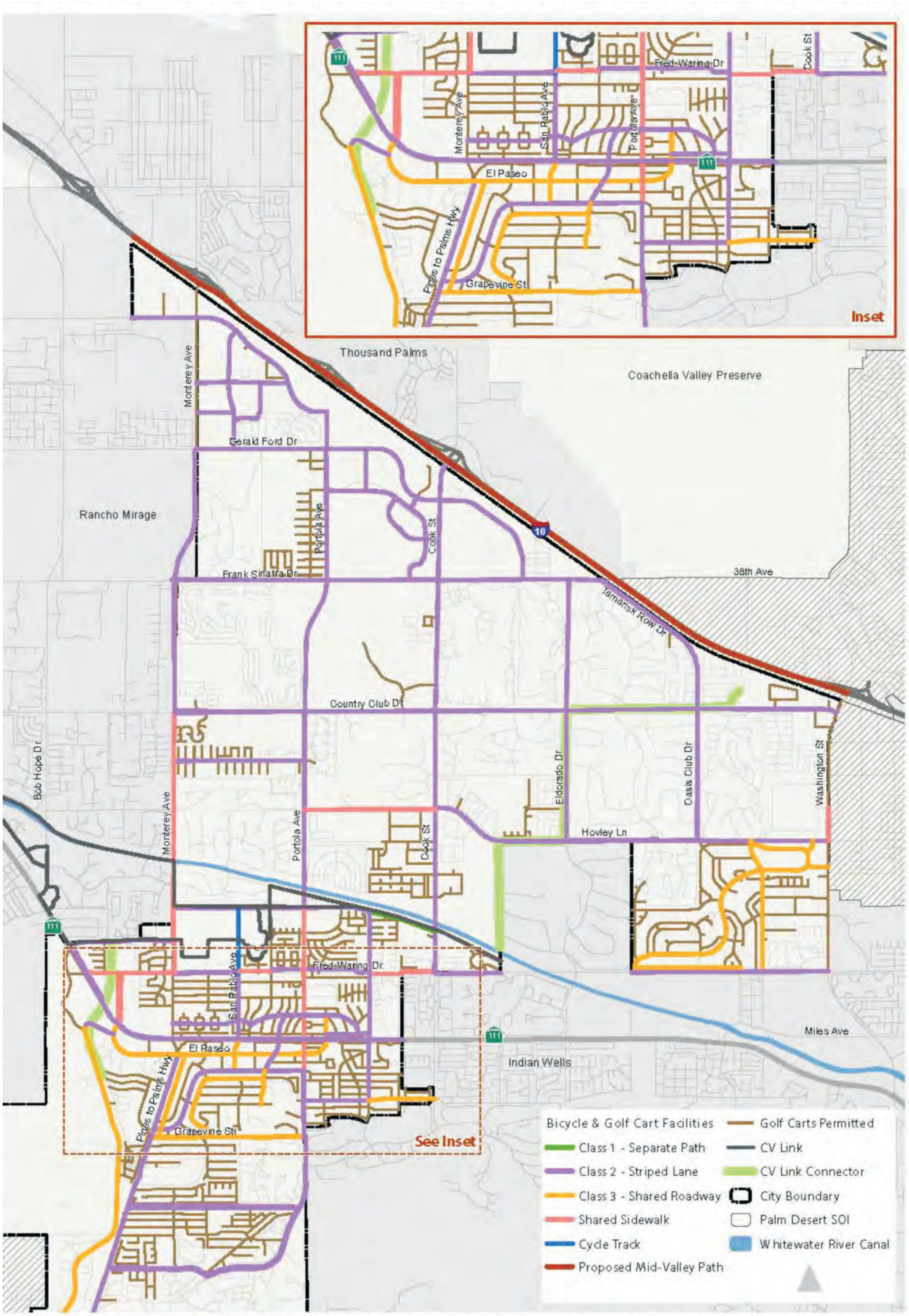

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Figure 3.6
City of Palm Desert General Plan Bicycle and Golf Cart Network

Riverside County Arena

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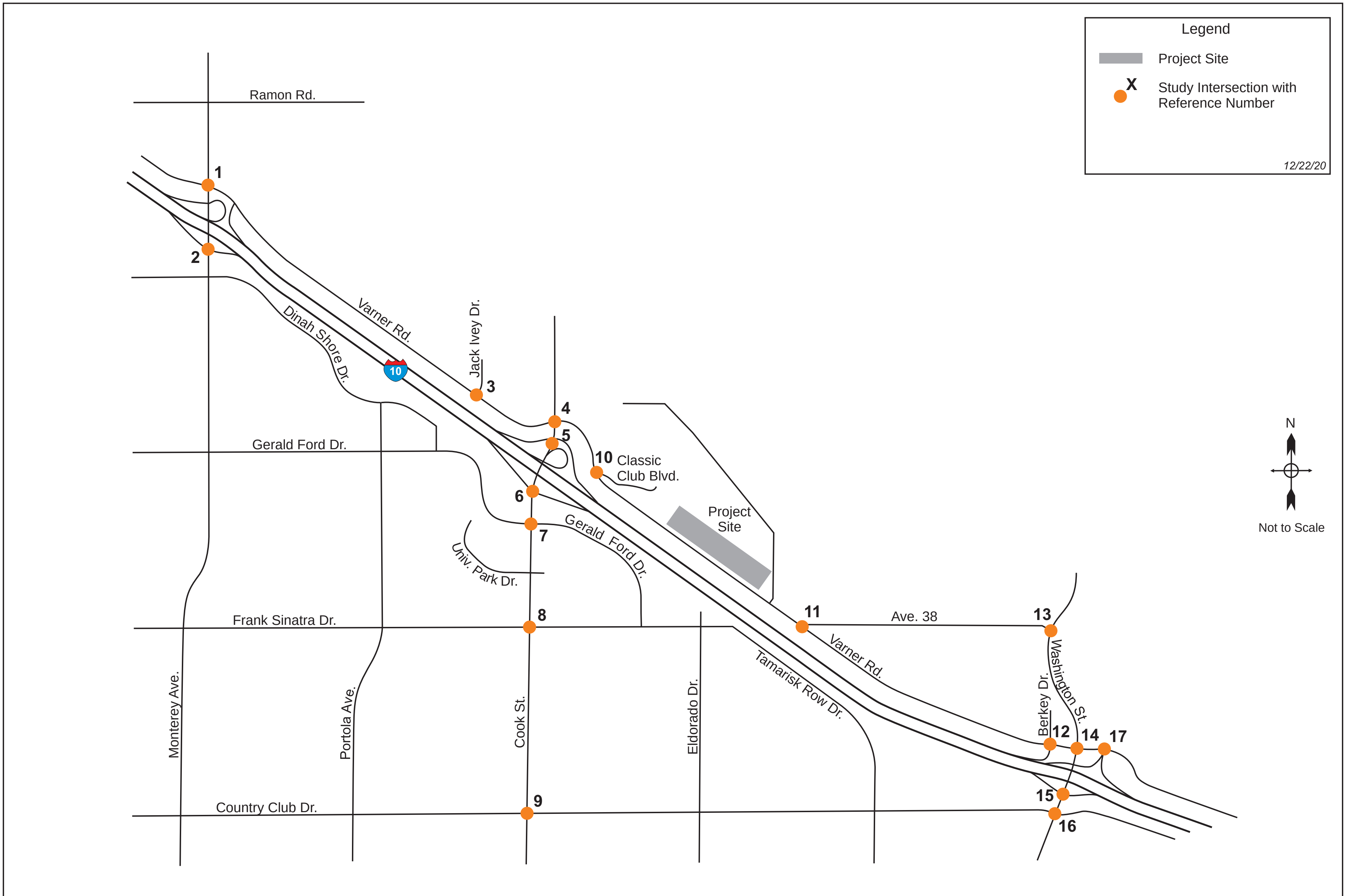

Figure 3.7
Intersection Analysis Locations - PM Peak Hour

Riverside County Arena

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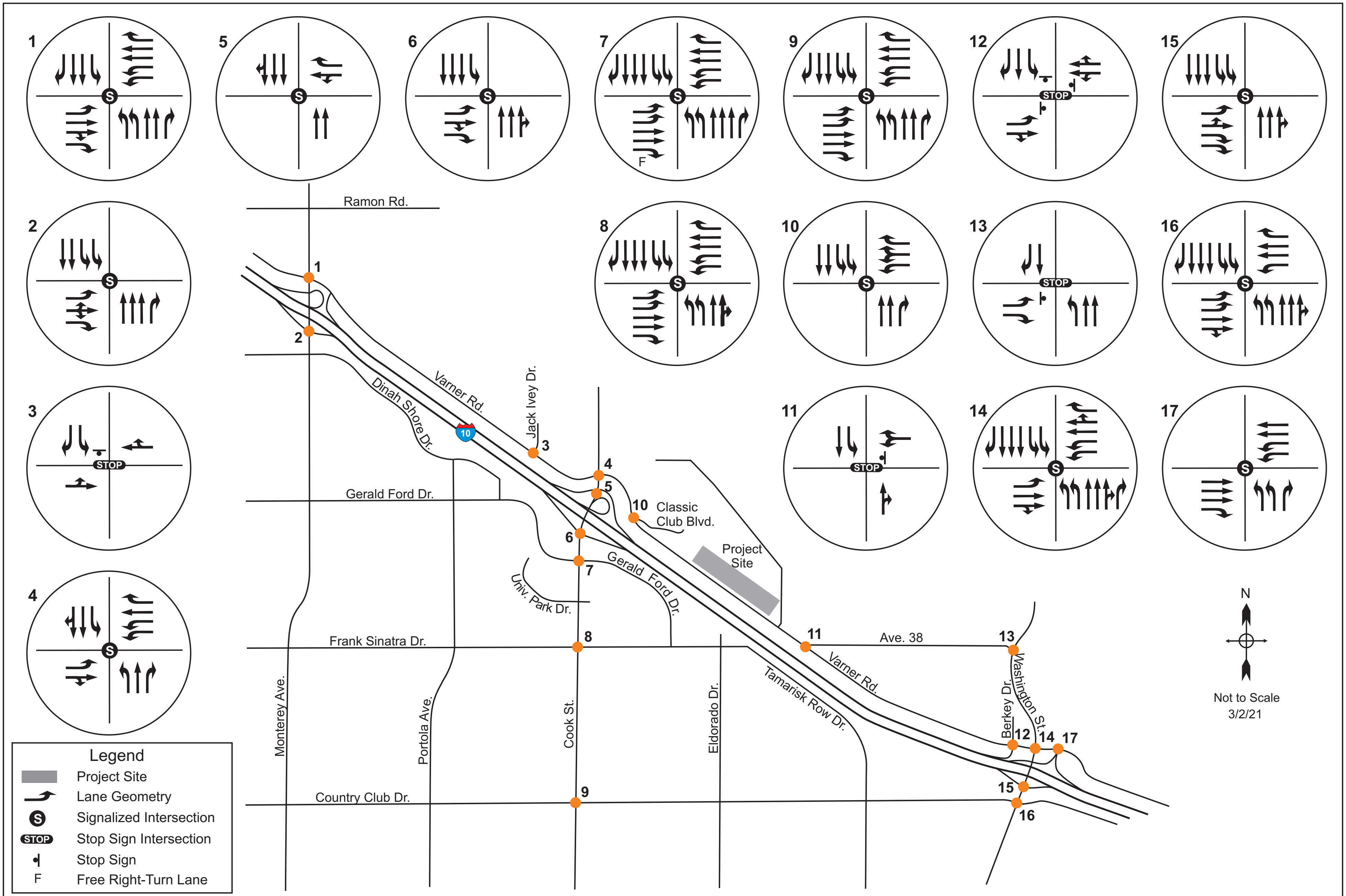

Figure 3.8
Intersection Configuration and Traffic Control

Riverside County Arena

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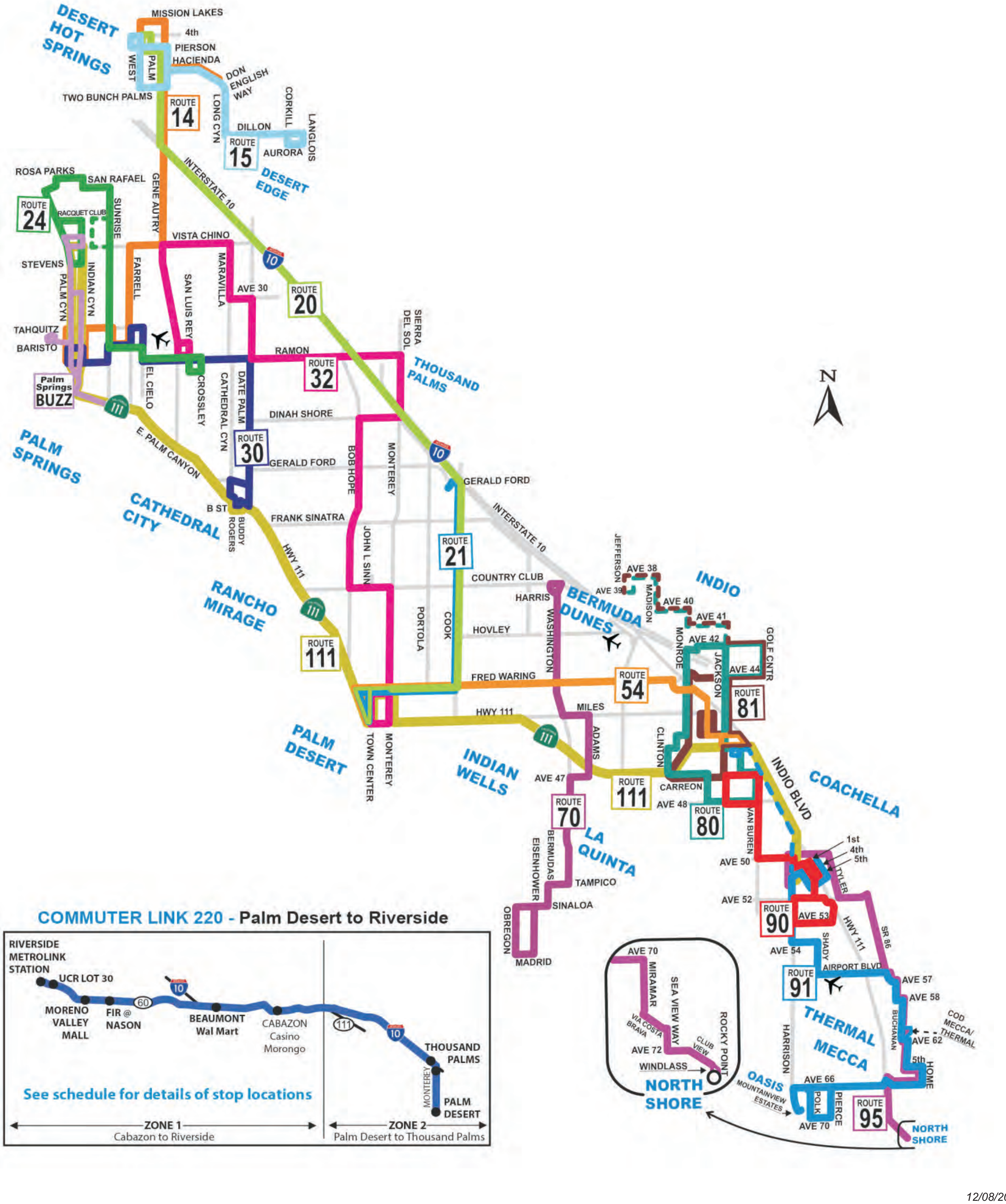

Figure 3.9

Transit Routes

Riverside County Arena

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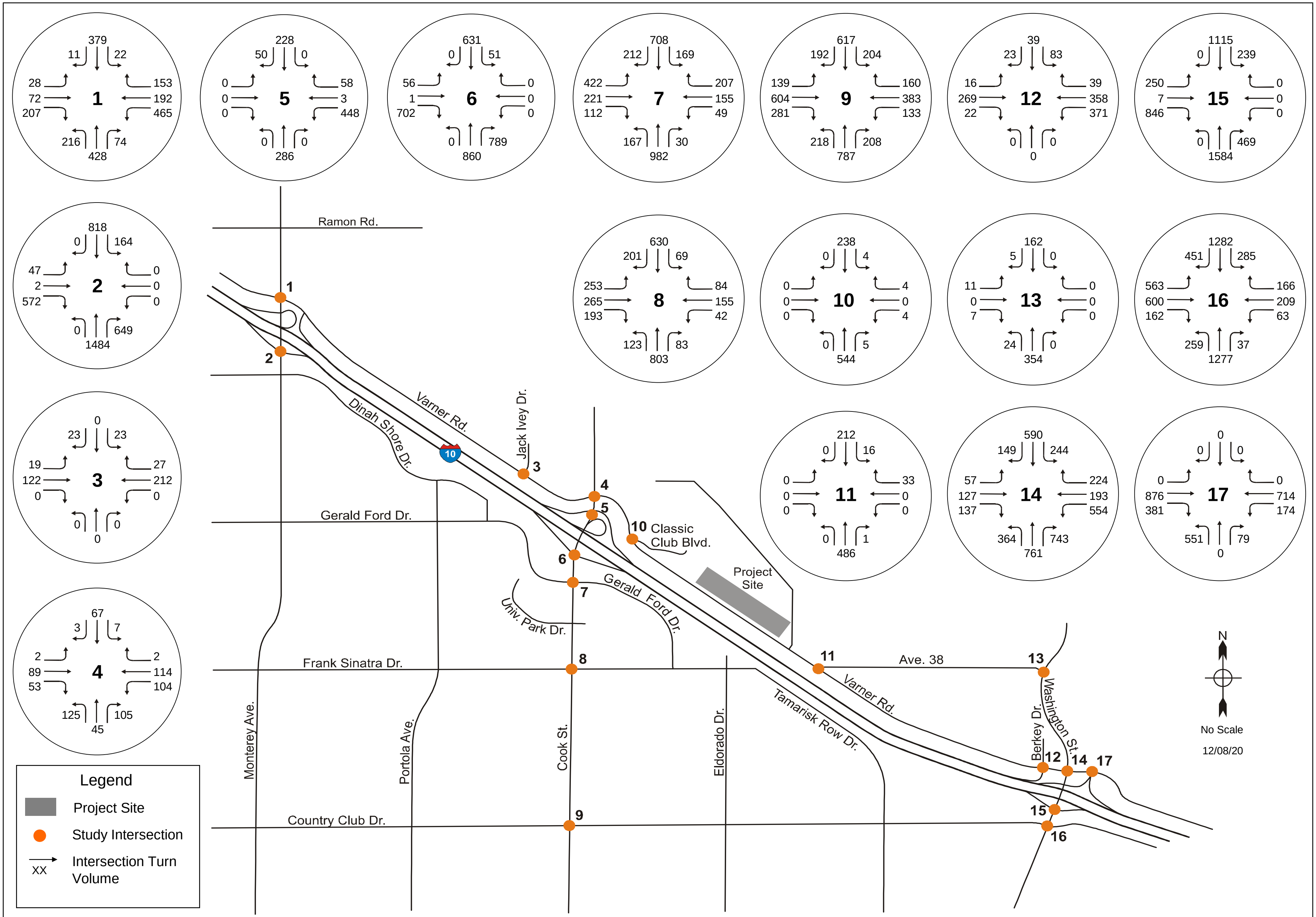

Figure 3.10
Existing Intersection PM Peak Hour Traffic Volumes

Riverside County Arena

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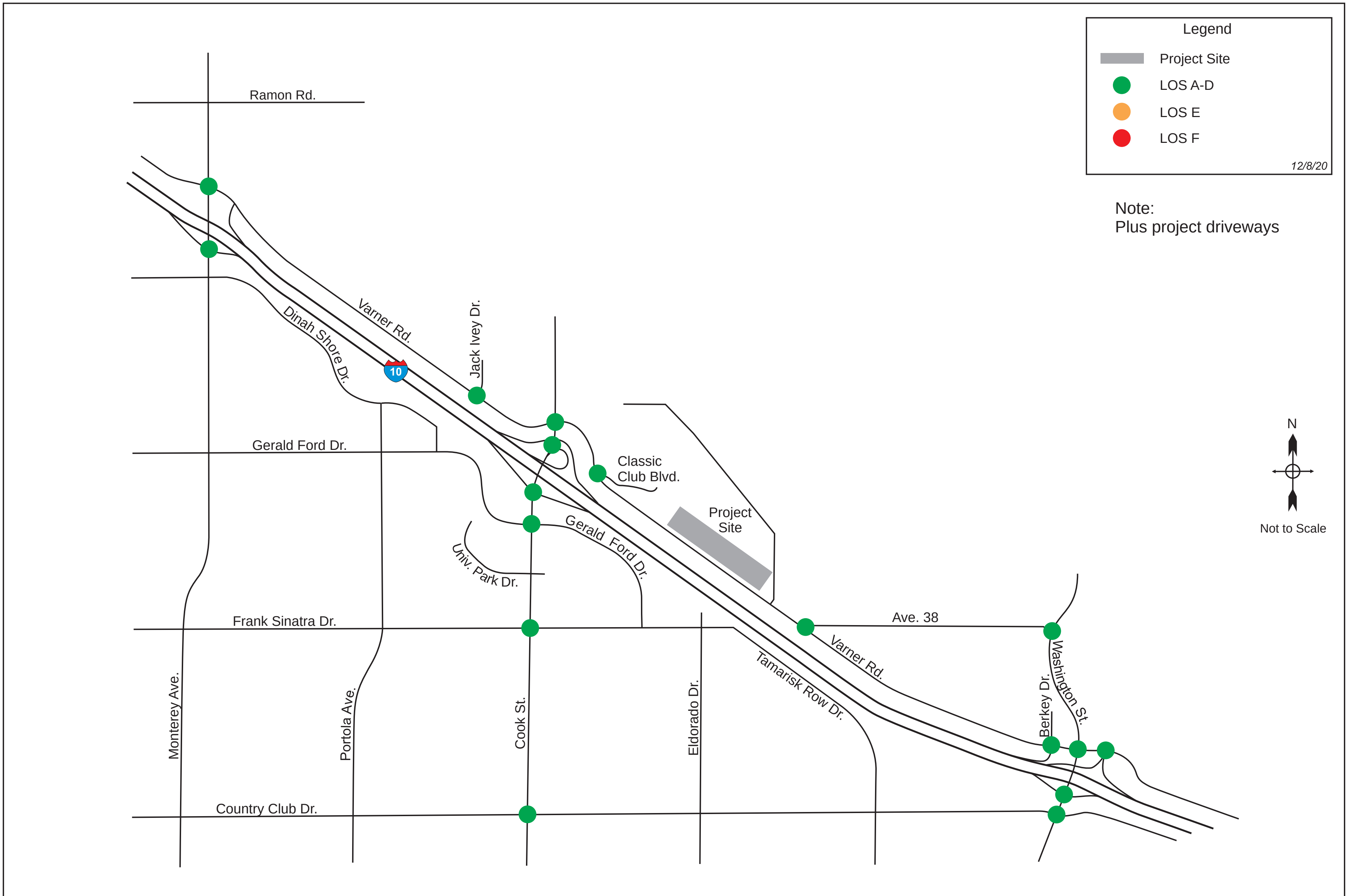

Figure 3.11
Existing Intersection PM Peak Hour Intersections Levels of Service

Riverside County Arena

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Table 3.1 Study Intersections – By Jurisdiction

No.	*Intersection Location*	*Jurisdiction*
1	Monterey Avenue & Varner Road	Riverside County
2	Monterey Avenue & I-10 EB Ramps	Riverside County, Caltrans
3	Varner Road & Jack Ivey Drive	Riverside County
4	Cook Street & Varner Road	Riverside County
5	Cook Street & I-10 WB Ramps	Riverside County, Caltrans
6	Cook Street & I-10 EB Ramps	Riverside County, Caltrans
7	Cook Street & Gerald Ford Drive	Palm Desert
8	Cook Street & Frank Sinatra Drive	Palm Desert
9	Cook Street & Country Club Drive	Palm Desert
10	Varner Road & Classic Country Club Blvd	Riverside County
11	Varner Road & Avenue 38	Riverside County
12	Varner Road & Berkey Drive	Riverside County
13	Washington Street & Avenue 38	Riverside County
14	Washington Street & Varner Road	Riverside County
15	Washington Street & I-10 EB Ramps	Riverside County, Caltrans
16	Washington Street & Country Club Drive	Palm Desert, Riverside County
17	Varner Road & I-10 WB Ramps	Riverside County, Caltrans

Table 3.2 Intersection Conditions - Existing 2020 3/1/2021

No.	*Intersection*	*Traffic Control*	*PM Peak Hour*	
			Delay	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	36.7	D
2	Monterey Ave. & I-10 EB Ramps	Signal	15.7	B
3	Varner Rd. & Jack Ivey Dr.	MSS	12.0	B
4	Cook St. & Varner Rd.	Signal	46.3	D
5	Cook St. & I-10 WB Ramps	Signal	14.2	B
6	Cook St. & I-10 EB Ramps	Signal	29.7	C
7	Cook St. & Gerald Ford Dr.	Signal	36.2	D
8	Cook St. & Frank Sinatra Dr.	Signal	17.0	B
9	Cook St. & Country Club Dr.	Signal	33.1	C
10	Varner Rd. & Classic Club Blvd.	Signal	1.9	A
11	Varner Rd. & Avenue 38	MSS	12.5	B
12	Varner Rd. & Berkey Dr.	AWS	22.8	C
13	Washington St. & Avenue 38	MSS	13.9	B
14	Washington St. & Varner Rd.	Signal	27.7	C
15	Washington St. & I-10 EB Ramps	Signal	38.2	D
16	Washington St. & Country Club Dr.	Signal	49.2	D
17	Varner Rd. & I-10 WB Ramps	Signal	15.2	B

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

4. FUTURE TRAFFIC PROJECTIONS

This chapter addresses future traffic projections. It describes projections of traffic for the proposed arena project, and also traffic from future cumulative development projects. It addresses 2023 as the opening year for the Arena.

4.1 Project Trip Generation

Trips for development projects are usually calculated using trip rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual[5]. However, the arena is a unique land use, and no reliable trip rates are available in the Trip Generation Manual. Trip generation was therefore estimated from the arena characteristics, projected attendance levels, and consideration of the likely transportation characteristics of patrons.

Trips were estimated for each category of event and for sellout/maximum and average attendance levels. Trip estimates are based on consideration of the following input parameters: mode of arrival, auto occupancy, and time of arrival and departure. Trip estimates include consideration of employees. The estimates were based on expected arena operating characteristics, and research on travel behavior at other arenas. Due to the location of the arena site, it is anticipated that all patrons will use a car to travel to/from the arena. Because of the tourist nature of the Coachella Valley and the expectation that some event patrons would stay in local hotels, it was assumed a small proportion of patrons could arrive by hotel/other shuttle bus (generally 0% to 3%). The estimation of arena trip generation is discussed more fully in Appendix C. The analysis conservatively assumes there will be no use of public transit, bicycle use, or walking to access the arena.

Trip generation estimates are summarized in Table 4.1 by event and attendance level, for daily totals, and for the AM Peak Hour, the PM Peak Hour (5:00 – 6:00 pm), the Pre-Event hour (6:00 – 7:00 pm, and for the Post-Event hour (actual time depends on the type of event – 9:30 to 10:30 pm for AHL games and 11:00 pm to 12:00 midnight for concerts). The estimates include patrons by private vehicle, shuttle bus vehicles, TNC's[6] (Uber, and Lyft type services), and employees.

Note that as an event facility, with no events in the morning, the arena would not generate any patron trips in the AM peak hour. Also as an arena facility, employees typically arrive after the

[5] *Trip Generation, 10th Edition*, Institute of Transportation Engineers, Washington DC., 2017

[6] Transportation Network Companies

AM peak hour, so there are no/negligible trips in the AM Peak Hour. There is thus no need to analyze the AM Peak Hour.

As described in Chapter 1.3, the LOS analysis for purposes of General Plan consistency evaluation and for comparison to the 2006 EIR Specific Plan is conducted for the PM Peak Hour. The Pre-Event and Post-Event Hours are analyzed for purposes of developing the Transportation Management Plan (TMP), discussed further in subsequent chapters.

The event scenario chosen for the PM peak hour analysis was an average attendance AHL game. This attendance of 7,500 patrons includes approximately 80% of all events projected at the arena (see Table 1.1). This is a conservative approach as traffic studies typically address average trip generation levels.

As shown in Table 4.1, the average AHL game would generate 622 trips in the PM peak hour. These are all patron trips. Approximately 95% would be inbound to the arena, and 5% would be outbound (returning shuttles and TNC vehicles). Note that there would be no employee trips during the PM peak hour as arena employees arrive well before and depart well after the 5:00 – 6:00 pm hour (due to the 7:00 pm event start time).

Table 4.1 also shows that the average AHL game would generate 2,175 trips in the pre-event hour (6:00 to 7:00 pm) of which 95% would be inbound to the arena, and 2,902 trips in the post-event hour (9:30 to 10:30 pm) of which 95% would be outbound from the arena. The higher trip totals that occur in the pre-event and post-event hours would occur outside of the PM peak hour and later in the evening when background traffic levels are lower. These hours are addressed in the TMP analysis later in this report.

4.2 Project Trip Distribution & Assignment

The distribution of project trips was estimated considering the projected market area and patron origins for the planned Riverside County Arena. It is based on market information and expectations provided by SoCal Arena Company, LLC[7], and consideration of population, travel distance, and the characteristics of the Coachella Valley and surrounding region, and the roadway system.

The maximum driving time expected for American Hockey League (AHL) events is about 45 minutes. That includes all of the Coachella Valley, much of the High Desert, the Banning Pass, and Moreno Valley. It is considered likely that AHL events would draw a very small amount from the Imperial Valley due to the distance involved, and would not draw from the Riverside / San Bernardino area due to closer proximity of this area to the Toyota Arena in Ontario.

[7] SoCal Arena Company, August/September, 2019; and September, 2020.

The maximum driving time expected for a concert event is about 60 minutes. This extends the market area to include the Salton Sea communities, the Hemet Area, and Riverside / San Bernardino. Although the Imperial Valley communities are generally more than an hour's drive time it is expected concert attendance for marquee high demand events may also draw from there. It is expected that less than 10% of attendees would draw from beyond a 60 minute drive time.

It is expected that attendance would draw from visitors staying at hotels or from tourist destinations in these areas. Given the destination qualities of the area, it is likely that high profile concerts will draw visitors who plan trips around concerts and stay in the Coachella Valley.

Figure 4.1 shows the general distribution of trips in the study area for an AHL game. Figure 4.2 shows the distribution of project trips at study intersections. Further details of trip distribution are shown in Appendix D.

Project trips were assigned to the study area roadway network, based on the trip generation and trip distribution parameters described above. PM peak hour project trips at study intersections are shown in Figure 4.3.

4.3 Future Background Traffic Growth, 2023

Future growth in background (existing) traffic will be composed of two elements: ambient growth reflecting a general growth in background traffic; and growth from other development projects that are under construction, approved but not yet under construction, or are in the planning pipeline (project for which applications have been filed and being considered).

<u>Ambient Growth</u>

An ambient growth rate of 2% per year was utilized, per the County of Riverside current practice. This constituted an overall growth of 6.1% over the three years from 2020 to 2023. This growth factor was applied to the existing 2020 traffic volumes.

<u>Related Projects</u>

A list of related development projects within approximately three miles of the Project site was compiled in consultation with the County of Riverside and the City of Palm Desert to account for traffic from other development planned in the area. The locations of these projects are shown in Figure 4.4. Table 4.2 comprises a list of these projects, and also shows the estimated trip generation for each project. Trip generation estimates were taken directly from traffic studies where available for specific cumulative projects. Otherwise, trips were estimated using trip rates in *ITE Trip Generation, 10th Edition.* Cumulative project trips were assigned to the roadway network based on the nature of the project, roadway access locations, consideration of the distribution of population and employment in the study area, and the characteristics of the roadway system. Where available, trip distribution from previous traffic studies analyzing related projects were used.

Future Traffic Forecasts

The future traffic forecasts comprise adding both the ambient growth and the traffic from related projects to the existing traffic volumes, to obtain background traffic forecasts for 2023. These were used in the subsequent analyses and are described in the following chapters.

4.4 Specific Plan Trip Comparison for the Specific Plan Amendment

An evaluation was conducted of trip generation for the overall Specific Plan, in order to determine the changes in total Specific Plan trips that would occur with the reduction in industrial park land uses and the addition of the arena.

Trip estimates for the Specific Plan Amendment include both arena trips (discussed earlier in this chapter), and updates to the other Specific Plan land uses. As described in Chapter 1.2, the Specific Plan Amendment proposes the introduction of a new Planning Area 11 for the proposed arena, and the reconfiguration of the boundaries for Planning Areas 4, 6B, 7 and 8 in order to accommodate the new Planning Area 11. The land use quantities would remain the same for all Planning Areas except for Planning Area 8. Because Planning Area 8 would be reduced in size to accommodate the arena, the square footage of Industrial Park land uses has been reduced from 1,200,000 sq. ft. to 381,035 sq. ft. The updated trip estimates included this new quantity.

The updated trip estimates for the Specific Plan Amendment also use updated trip generation rates for the Specific Plan land uses. The 2006 Specific Plan EIR Traffic Study used ITE 7th Edition trip rates. Since that time, ITE has updated its trip rate database three times, and the current version is the ITE 10th Edition. This latest edition is a comprehensive update that has included many trip generation information updates and is now the industry standard for trip estimation. The ITE 10th Edition trip rates were therefore used in the updated trip analysis for the Specific Plan. The updated trip total calculation details are shown in Appendix E.

Trip Comparison – Approved Specific Plan and Specific Plan Amendment

Trip estimates for the arena were added to the trips estimated for the Specific Plan land uses, to obtain new updated trip totals for the Proposed Specific Plan Amendment. The arena is a unique land use that will cater to varying types and sizes of events and will not be in operation all the time (approximately 181 days of the year). This compares to the industrial park land use that will be replaced that would have been in operation daily throughout the year.

The analysis is summarized in Table 4.3. Trips have been calculated for daily, AM peak and PM peak hour periods. As the arena is a unique land use and will cater to varying types and sizes of events, the trip comparison is shown for each event type and for sellout and average attendance levels. About 184 events are projected, so there will be 181 days of the year when there will be no events. In 135 of these 181 non-event days the training ice rink will be open to the community as a community ice facility.

Table 4.3 shows that the 2006 EIR identified Specific Plan trip totals of 38,721 daily, 2,201 AM peak hour, and 3,820 PM peak hour trips[8]. Table 4.3 also shows that in most every case (for all event types and for daily, AM peak hour and PM peak hour), total trips under the proposed Specific Plan Amendment would be less than the total trips identified in the 2006 EIR.

For one event type the proposed Specific Plan Amendment daily trips would be slightly higher than the 2006 EIR. The daily trips for days with sellout concerts events would be 1.4% higher (39,725 compared to 38,271 daily trips) with the Specific Plan Amendment. However, this would occur only 23 days out of the year. The AM and PM peak hour trip totals for this event type would be lower than the adopted Specific Plan.

For all other events, and non-event days, the Specific Plan Amendment trips will be lower than the adopted Specific Plan trip totals – a total of 340 days a year.

<u>Conclusion</u>

The proposed Specific Plan Amendment would not result in a substantial increase in the number of trips previously analyzed in the 2006 EIR for the adopted Specific Plan. It was therefore concluded that further analysis of the Specific Plan buildout year was not necessary.

[8] County of Riverside, Planning Department, *NorthStar Specific Plan No. 343 and Final Environmental Impact Report No. 470,* prep. by Stantec/The Keith Companies (March 2006).

Figure 4.1
Project Trip Distribution – Study Area

Riverside County Arena

The **Mobility** Group
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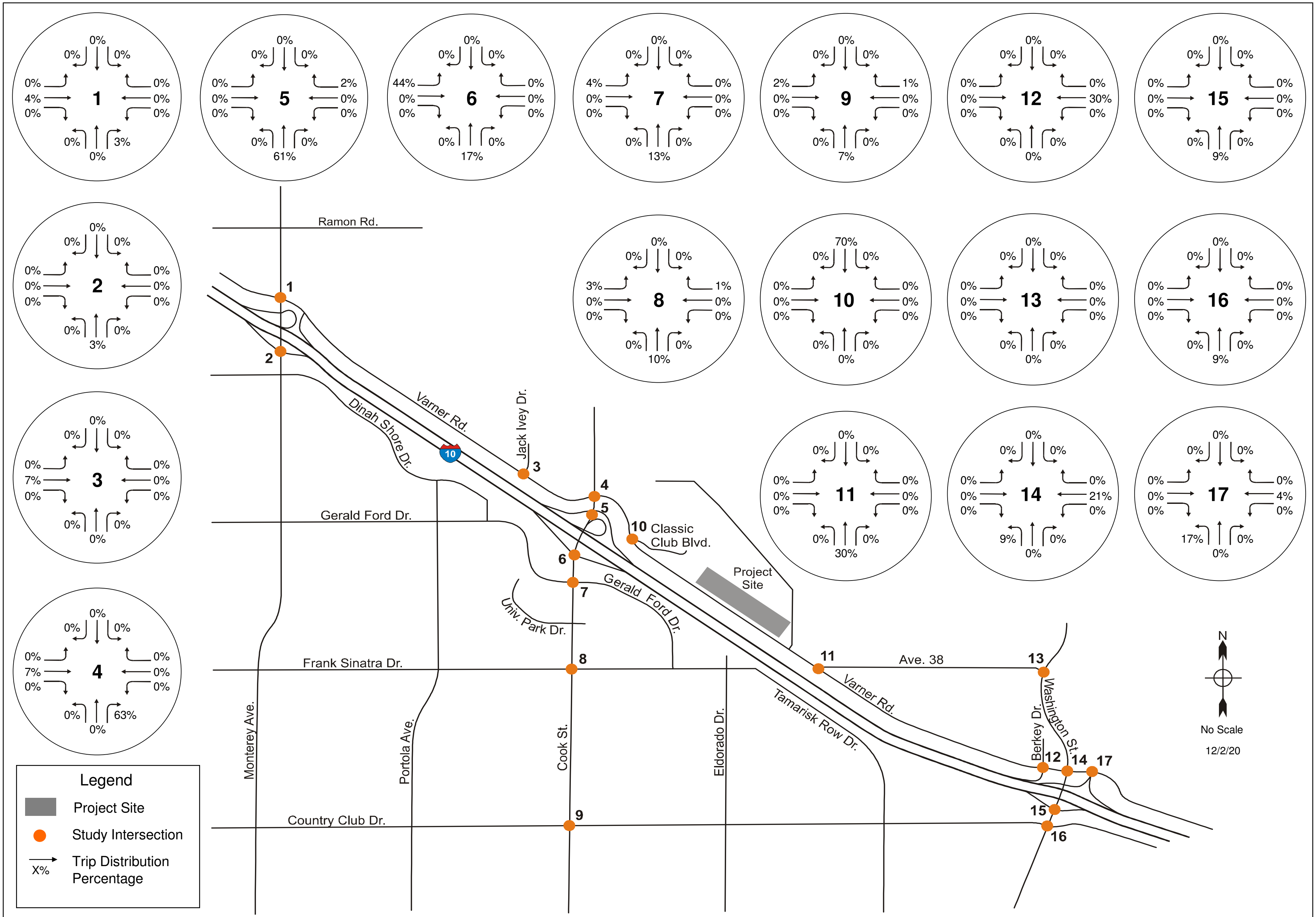

Figure 4.2

Project Trip Distribution – Study Intersections

Riverside County Arena

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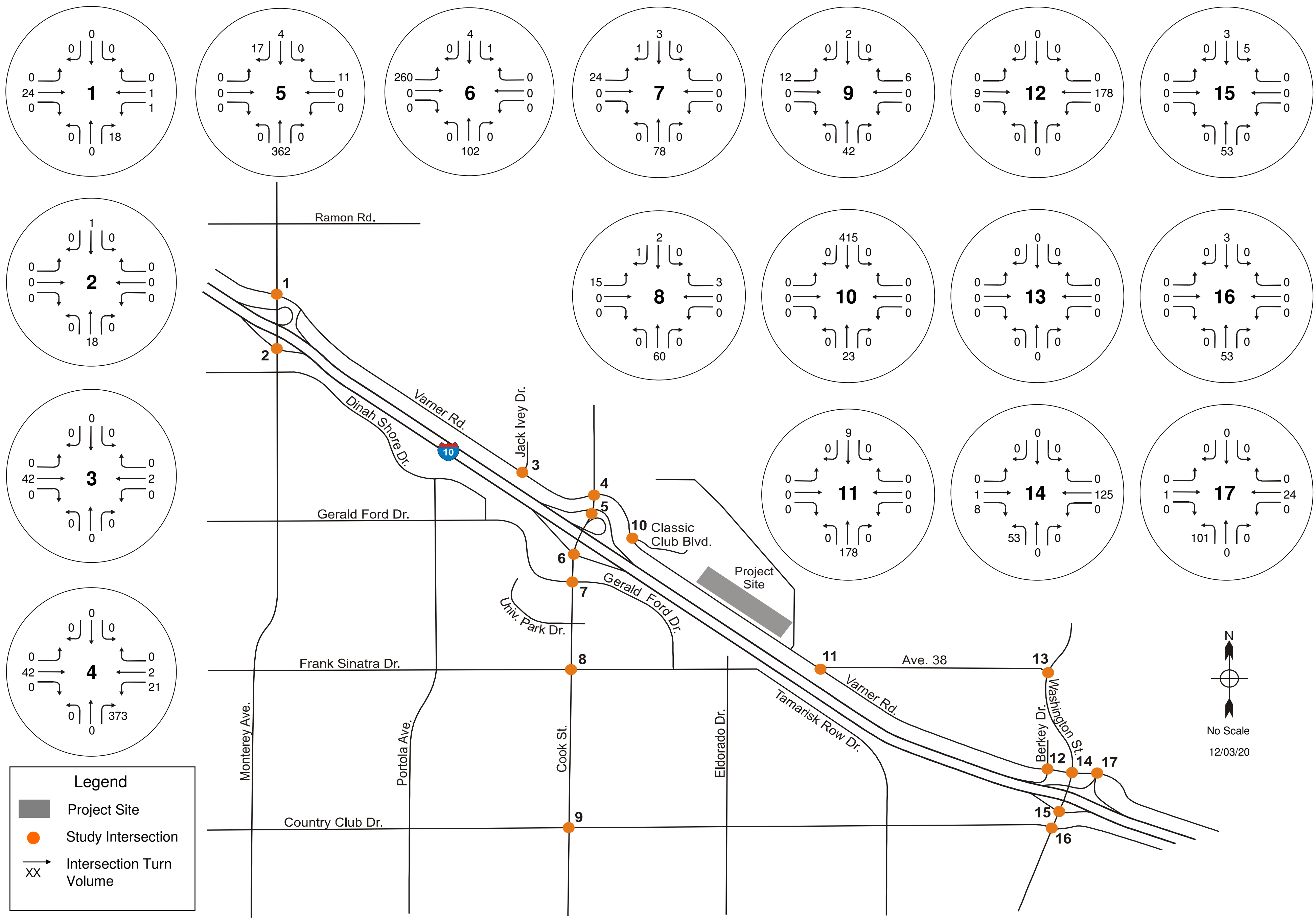

Figure 4.3
Project Trips PM Peak Hour

Riverside County Arena

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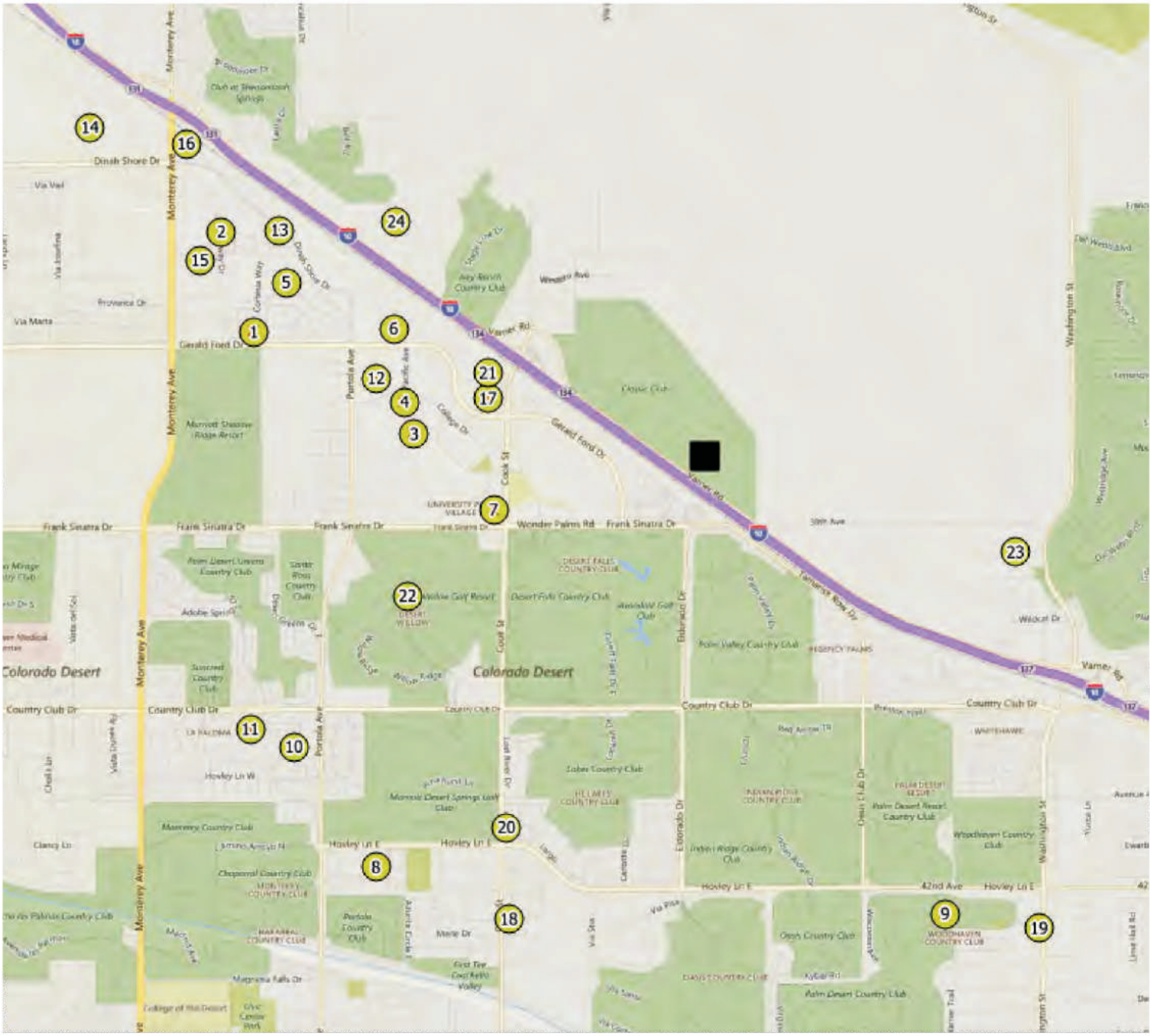

N

Not to Scale

12/22/20

Figure 4.4

Cumulative Development Projects

Riverside County Arena

The **Mobility** Group

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Table 4.1 - Project Trip Generation 1/11/2021

Event Type	*Attendance Level*	*Number of Events*	*Total Trips*				
			Daily	*AM*	*PM (5:00 - 6:00)*	*Pre-Event (6:00 - 7:00)*	*Post Event Hour*
Concert Sellout	11,000	23	9,384	0	906	3,166	4,199
Concert Average	7,500	22	6,398	0	618	2,160	2,862
AHL Sellout	9,918	5	8,550	0	822	2,874	3,824
AHL Average	7,500	41	6,492	0	622	2,175	2,902
Family Sellout	5,000	19	3,654	0	343	1,202	1,628
Family Average	4,000	19	2,896	0	275	961	1,292
Other-Sport Sellout	10,000	2	8,540	0	828	2,898	3,824
Other-Sport Average	7,000	8	5,966	0	581	2,029	2,674
Other-Various Sellout	3,000	10	2,692	0	244	852	1,194
Other-Various Average	800	10	708	0	67	229	316
G-League Sellout	1,000	1	910	0	0	360	401
G-League Average	750	24	690	0	0	270	304
Non-Event (Community Ice)	NA	135 Days	760	6	86	86	0

Table 4.2 Cumulative Development Projects

Project ID	Project Name	Location/Address	Project Description			Daily Trips	Weekday PM Peak Hour (5:00 - 6:00 PM)		
							In	Out	Total
1	Dolce Development	Northeast corner of Gerald Ford Drive and Gateway Drive (APN 653-260-030)	132	DU	Single-Family Residential	1,246	82	49	131
2	Falling Waters	73-600 35th Avenue (APN 653-250-007)	227	DU	Condo	1,662	79	48	127
3	Desert Wells	Parcel 9 of TPM 31730 between Portola Ave/Cook St and Frank Sinatra Dr/Gerald Ford Dr	270	DU	Single-Family Residential	2,549	167	100	267
4	University Park	Northwest corner of University Park Drive and College Drive	78 69 49	DU DU DU	Condo Townhome Single-Family Residential	1,539	81	51	132
5	Sage	South side of Dick Kelly Drive, between Cortesia Way and Dinah Shore Drive (APN 694-130-024)	111 140	DU DU	Single-Family Residential Multi-Family Residential	2,073	118	70	188
6	Genisis @ Millennium	Northeast corner of Gerald Ford Drive and Portola Avenue	166	DU	Single-Family Residential	1,567	103	61	164
7	Villas at Cook Street	Northwest corner of Frank Sinatra Drive and Cook Street	80 20	DU TSF	Single-Family Residential Retail	1,510	87	68	155
8	The Sands Apartments	Southwest corner of Jasmine Court and Hovley Lane West	388	DU	Multi-Family Residential	2,840	136	81	217
9	PALM DESERT COUNTRY CLUB FORMER EXECUTIVE GOLF COURSE	Palm Desert County Club former Executive Golf Course (APN 637-190-121, 024, 027)	69	DU	Condo	505	24	15	39
10	Avenida Senior Living	40-445 Portola Avenue	161	DU	Assisted Living	419	16	26	42
11	Wolff Senior Living	74-300 Country Club Drive	164	DU	Senior Adult Housing	607	23	20	43
12	University Park	Southeast corner of Portola Avenue and Gerald Ford Drive	336 110 654	DU DU DU	Multi-Family Residential Townhome Single-Family Residential	9,439	562	335	897
13	Alpha Holdings	73-725 Dinah Shore Drive	17.9	TSF	Light Industrial	89	1	10	11
14	Landmark	Vacant 74+ acre parcel located at the northeast corner of Key Largo Drive and Dinah Shore Drive	266.0 1,500 75.0	TSF DU TSF	Storage Multi-family Residential Commercial	14,274	675	502	1,177
15	MCPP Palm Desert	Vacant 32+ acre parcel bounded by Monterey Avenue to west, "A" Street to the South, Dick Kelly Drive to the North, and Gateway Drive to the East	120.0 384	TSF DU	Commercial Multi-Family Residential	7,341	354	318	672
16	Monterey Crossing	Northeast corner of Monterey Avenue and Dinah Shore Drive	130 130	TSF RM	Commercial Hotel	5,995	278	295	573
17	Holiday In Express & Future Hotel	Technology Drive north of Gerald Ford Drive (APN 694-190-085)	186	RM	Hotel	1,555	58	54	112
18	Russell Lane	Southwest corner of Sego Lane and Green Way (APN 634-220-015)	26.7	TSF	Light Industrial	132	2	15	17
19	Palm Village	Southwest corner of Avenue of the States and Washington Street	6 6.0 6.0	TSF TSF TSF	Restaurant Retail Office	958	48	41	89
20	University Village	41-990 Cook Street	9	TSF	Restaurant	1,010	55	33	88
21	La Quinta Brewery	74-714 Technology Drive	13.3	TSF	Brewery	502	24	27	51
22	Desert Surf	DESERT WILLOW GOLF RESORT (APN 620-420-023)	438 1,350 4.0 11.25	RM Guests TSF TSF	Hotel/Villa Surf Lagoon Retail Restaurant/Café/Bar	5,496	147	167	304
23	CUP190040	Northerly of Flora Road, easterly of Interstate 10, southerly of 38th Avenue, and westerly of Washington Street	6	TSF	Cannabis Store	227	11	12	23

Table 4.2 Cumulative Development Projects

Project ID	Project Name	Location/Address	Project Description			Daily Trips	Weekday PM Peak Hour (5:00 - 6:00 PM)		
24	SP00392 (Ivey Palms Specific Plan)	Immediately north and east of Varner Road, the 1-10 freeway and the City of Palm Desert; south of Ramon Road and approximately 2.8 miles south of the Indio Hills; and west of Jack Ivey Drive and the Ivey Ranch Country Club, and approximately 0.75 mile west of the Coachella Valley National Wildlife Refuge	600	DU	Single-Family Residential	5,664	374	220	594

Table 4.3 Adopted and Amended Specific Plan - Trip Generation Comparison

Scenario	*Event*	*Attendance*	*Number of Events*	*Trips Generated*		
				Daily	*AM*	*PM*
2006 SP/EIR Land Use[1]	NA	NA	NA	38,721	2,201	3,820
Amended Land Use[2]	Concert	Sellout	23	39,275	1,342	3,704
		Average	22	36,289	1,342	3,416
		Weighted Mean		37,815	1,342	3,563
	AHL	Sellout	5	38,441	1,342	3,620
		Average	41	36,383	1,342	3,420
		Weighted Mean		36,607	1,342	3,442
	Family	Sellout	19	33,545	1,342	3,141
		Average	19	32,787	1,342	3,073
		Weighted Mean		33,166	1,342	3,107
	Other-Sport	Sellout	2	38,431	1,342	3,626
		Average	8	35,857	1,342	3,379
		Weighted Mean		36,372	1,342	3,428
	Other-Various	Sellout	10	32,583	1,342	3,042
		Average	10	30,599	1,342	2,865
		Weighted Mean		31,591	1,342	2,954
	G League	Sellout	1	30,801	1,342	2,798
		Average	24	30,581	1,342	2,798
		Weighted Mean		30,590	1,342	2,798
	Non-Event (Community Ice)		135	30,651	1,348	2,884

Notes:

[1]County of Riverside NorthStar (SP 343) Traffic/Parking Analysis, Kunzman Associates, June 13, 2005.

[2]See tables B-1 to H-1.

5. EXISTING + AMBIENT + PROJECT CONDITIONS (EAP)

This chapter address existing plus ambient growth plus project traffic conditions for 2023 when the arena will open. It also compares potential roadway deficiencies to the impacts identified for the Specific Plan in the 2006 EIR for the EAP conditions and evaluates conditions by the criteria identified in Chapter 2 of this report.

A comparison of the conclusions of the analysis of the existing plus ambient growth plus project traffic conditions with the conclusions of the analysis in the 2006 EIR is also provided.

5.1 Traffic Volume Forecasts - EAP

The traffic volume forecasts for the PM peak hour, prepared as described in Chapter 4, are shown in Figure 5.1 for study intersections.

5.2 Future Roadway Improvements – EAP

There are no roadway improvements programmed at study intersections before the arena will open in 2023. The analysis is therefore based on the same roadway configurations as currently exist (see Figure 3.8). The analysis does include the proposed site access driveways on Varner Road, which are addressed in Chapter 7.

5.3 Future Conditions – Intersections - EAP

Intersections Analysis

The intersection analysis is summarized in Table 5.1, and LOS worksheets are included in Appendix F. Table 5.1 shows the LOS for each intersection, including a comparison to existing conditions. Intersection LOS is also shown in Figure 5.2. All intersections are projected to operate at LOS D or better, with two exceptions.

Varner Road & Berkey Drive (County of Riverside)

The unsignalized intersection of Varner Road & Berkey Drive (all-way stop) would operate at LOS F, which would not meet the applicable County of Riverside LOS performance standard. The 2006 EIR identified LOS E and a significant impact at this location, so the operating condition of this intersection would not be a new impact compared to the 2006 EIR. It would not represent a substantial increase in the severity of the impact, as the traffic signal improvement as identified in the 2006 EIR would result in this intersection operating at an acceptable LOS.

Washington Street & Country Club Drive (City of Palm Desert)

This intersection would operate at LOS E. Because the City has no defined level of service standards in its General Plan, intersections in Palm Desert are reviewed in the context of consistency with applicable policies in the General Plan. The projected traffic conditions would be consistent with the roadway typologies in, and would not require changes to, the City's roadway classifications or cross sections for these streets.

This intersection was not analyzed in the 2006 EIR. The EAPC condition would not constitute a new significant environmental impact to those identified in the 2006 EIR.

Signal Warrant Analysis

A signal warrant analysis was conducted for the intersection of Varner Road & Berkey Drive (see Appendix G). The analysis shows that a signal would be warranted at this location under EAP conditions.

Consistency and Recommended Improvements - Intersections

Based on the analysis, the following improvement would be required for EAP conditions:

- Add a new traffic signal at the intersection of Varner Road & Berkey Drive.

This improvement was also identified in the 2006 EIR. This analysis assumes the signal would be implemented without any additional roadway improvements, and would operate under split phasing. The intersection would operate at LOS C, as shown in Table 5.2. Analysis calculations are shown in Appendix G.

Comparison to 2006 Specific Plan EIR Analysis

The EAP analysis shows that with the improvement identified above there would be no substantial change in the operating conditions of roadway and intersections in comparison to the results of the EAP conditions analysis in the 2006 EIR. The EAP analysis further shows that with the improvement identified above, there would be no further roadway improvements required to provide acceptable operating conditions as defined by the General Plan.

5.4 Recommended Improvements – EAP – Overall Summary

In summary, the above analysis has identified one improvement will be needed for EAP conditions to ensure all intersections operate at an acceptable LOS as defined in the WCVAP:

- Add a new traffic signal at the intersection of Varner Road & Berkey Drive.

5.5 Comparison to 2006 EIR– EAP Conditions

The EAP analysis shows that with the improvement identified above there would be no substantial change in the operating conditions of roadways and intersections in comparison to the results of the EAP conditions analysis in the 2006 EIR. The EAP analysis further shows that with the improvement identified above, there would be no further roadway improvements required to provide acceptable operating conditions as defined by the General Plan.

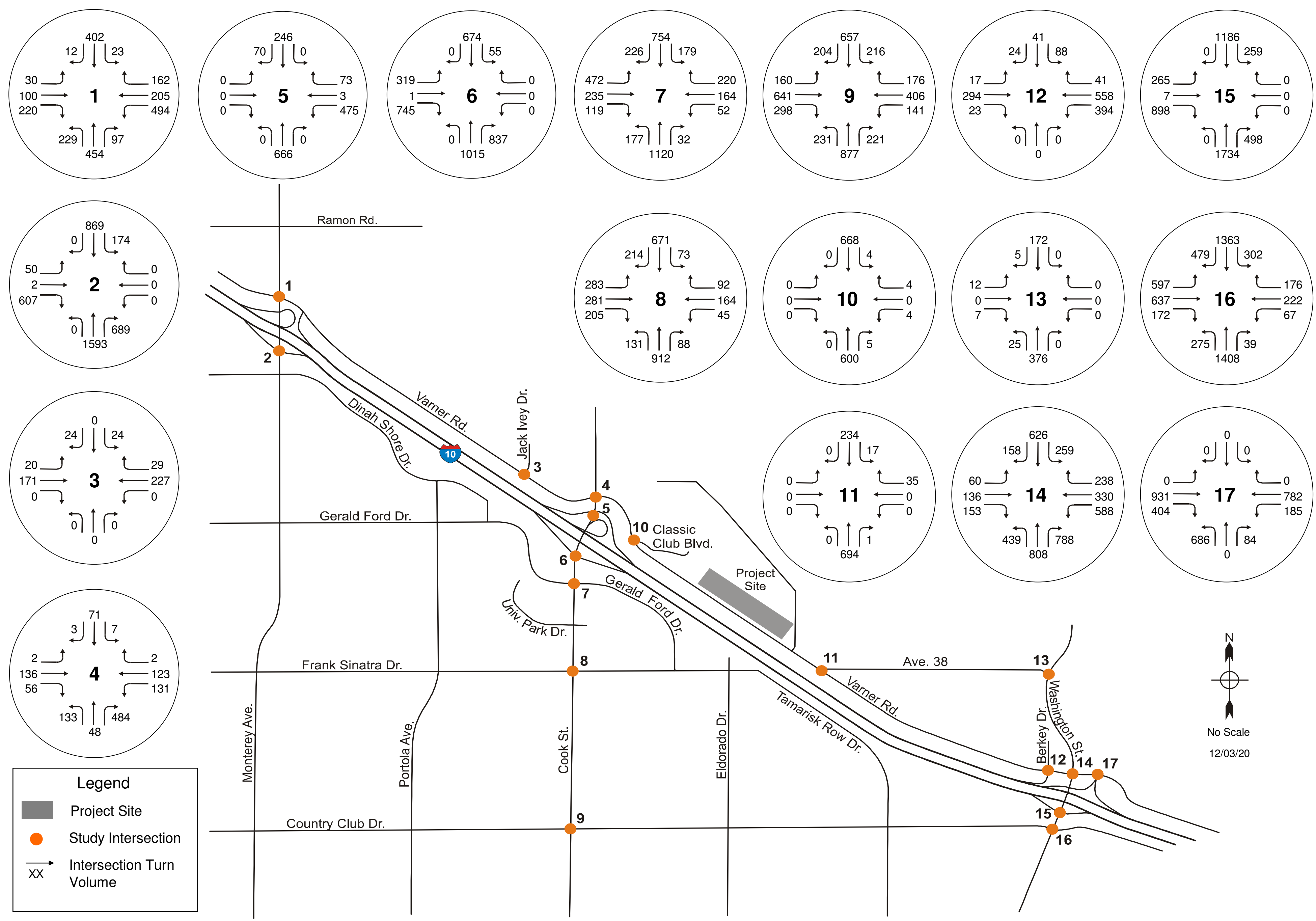


Figure 5.1
EAP Intersection PM Peak Hour Traffic Volumes

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

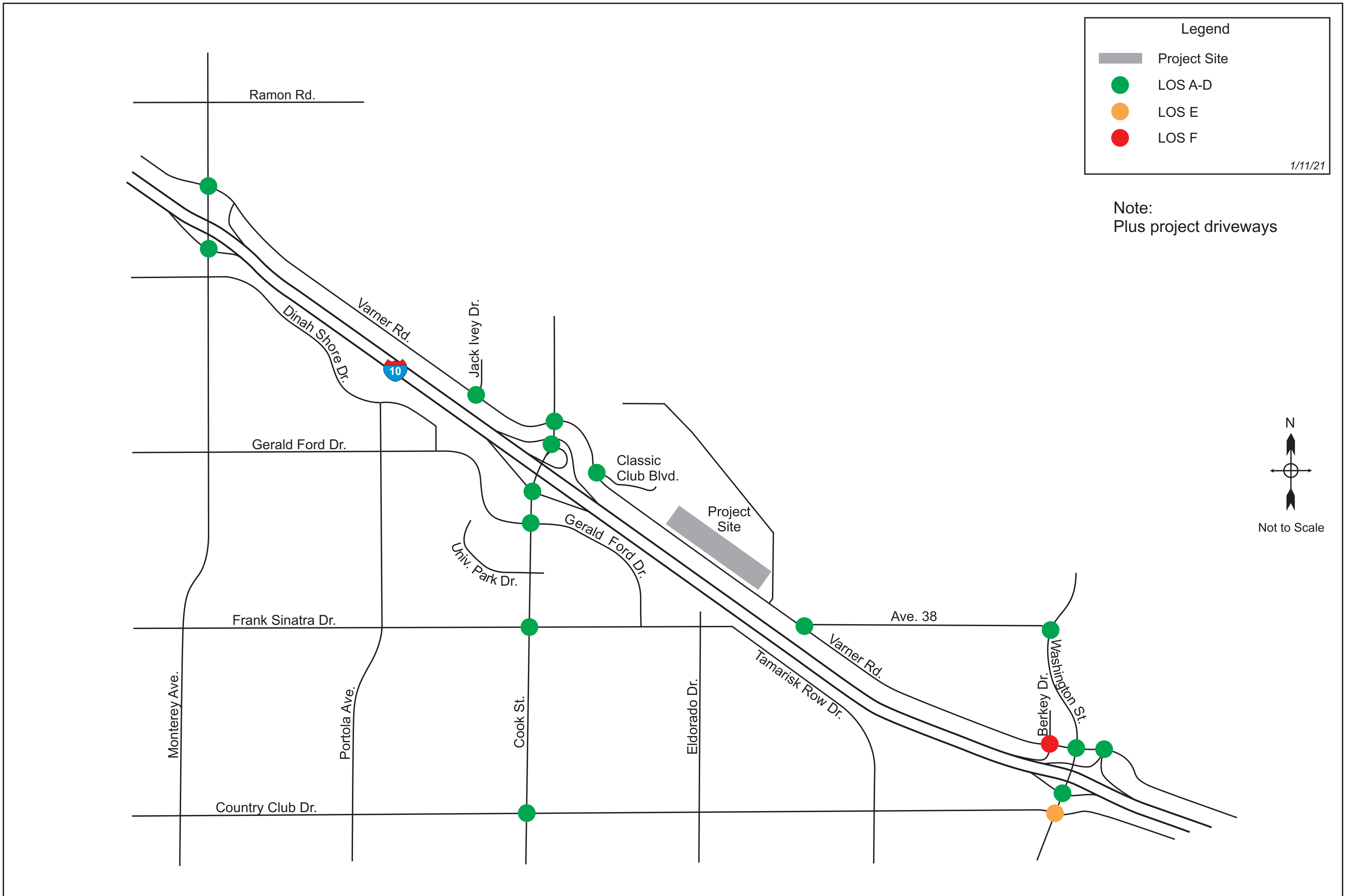


Figure 5.2
EAP Intersection PM Peak Hour Intersection Levels of Service

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

Table 5.1 Intersection Conditions - EAP 2023 3/1/2021

No.	*Intersection*	*Traffic Control*	*Existing*		*EAP*	
			Delay	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	36.7	D	36.8	D
2	Monterey Ave. & I-10 EB Ramps	Signal	15.7	B	17.1	B
3	Varner Rd. & Jack Ivey Dr.	MSS	12.0	B	12.8	B
4	Cook St. & Varner Rd.	Signal	46.3	D	36.2	D
5	Cook St. & I-10 WB Ramps	Signal	14.2	B	13.4	B
6	Cook St. & I-10 EB Ramps	Signal	29.7	C	36.9	D
7	Cook St. & Gerald Ford Dr.	Signal	36.2	D	37.6	D
8	Cook St. & Frank Sinatra Dr.	Signal	17.0	B	18.5	B
9	Cook St. & Country Club Dr.	Signal	33.1	C	34.2	C
10	Varner Rd. & Classic Club Blvd.	Signal	1.9	A	1.6	A
11	Varner Rd. & Avenue 38	MSS	12.5	B	15.7	C
12	Varner Rd. & Berkey Dr.	AWS	22.8	C	50.9	F
13	Washington St. & Avenue 38	MSS	13.9	B	14.4	B
14	Washington St. & Varner Rd.	Signal	27.7	C	29.9	C
15	Washington St. & I-10 EB Ramps	Signal	38.2	D	49.0	D
16	Washington St. & Country Club Dr.	Signal	49.2	D	55.4	E
17	Varner Rd. & I-10 WB Ramps	Signal	15.2	B	18.2	B

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 5.2 Intersection Conditions - EAP 2023 - With Improvements

No.	*Intersection*	*Traffic Control*	*Existing*		*EAP*		*EAP + Improvement*	
			Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	36.7	D	36.8	D		
2	Monterey Ave. & I-10 EB Ramps	Signal	15.7	B	17.1	B		
3	Varner Rd. & Jack Ivey Dr.	MSS	12.0	B	12.8	B		
4	Cook St. & Varner Rd.	Signal	46.3	D	36.2	D		
5	Cook St. & I-10 WB Ramps	Signal	14.2	B	13.4	B		
6	Cook St. & I-10 EB Ramps	Signal	29.7	C	36.9	D		
7	Cook St. & Gerald Ford Dr.	Signal	36.2	D	37.6	D		
8	Cook St. & Frank Sinatra Dr.	Signal	17.0	B	18.5	B		
9	Cook St. & Country Club Dr.	Signal	33.1	C	34.2	C		
10	Varner Rd. & Classic Club Blvd.	Signal	1.9	A	1.6	A		
11	Varner Rd. & Avenue 38	MSS	12.5	B	15.7	C		
12	Varner Rd. & Berkey Dr.	AWS	22.8	C	50.9	F	25.7	C
13	Washington St. & Avenue 38	MSS	13.9	B	14.4	B		
14	Washington St. & Varner Rd.	Signal	27.7	C	29.9	C		
15	Washington St. & I-10 EB Ramps	Signal	38.2	D	49.0	D		
16	Washington St. & Country Club Dr.	Signal	49.2	D	55.4	E		
17	Varner Rd. & I-10 WB Ramps	Signal	15.2	B	18.2	B		

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

6. EXISTING + AMBIENT + PROJECT + CUMULATIVE CONDITIONS (EAPC)

This chapter addresses existing plus ambient growth plus project plus cumulative project traffic conditions for 2023 when the arena is expected to open, and evaluates conditions by the criteria identified in Chapter 2 of this report.

A comparison of the conclusions of the analysis of the existing plus ambient growth plus project plus cumulative traffic conditions with the conclusions of the analysis in the 2006 EIR is also provided.

6.1 Traffic Volume Forecasts - EAPC

The traffic volume forecasts for the PM peak hour, prepared as described in Chapter 4, are shown in Figure 6.1 for study intersections.

6.2 Future Roadway Improvements – EAPC

There are no roadway improvements programmed at study intersections before the arena will open in 2023. The analysis is therefore based on the same roadway configurations as currently exist (see Figure 3.8). The analysis does include the proposed site access driveways on Varner Road, which are addressed in Chapter 7.

6.3 Future Conditions – Intersections - EAPC

<u>Intersections Analysis</u>

The intersection analysis is summarized in Table 6.1, which shows the LOS for each intersection, including a comparison to existing conditions. and LOS worksheets are included in Appendix H. Intersection LOS is also shown in Figure 6.2. All intersections are projected to operate at LOS D or better, with the following exceptions.

County of Riverside

The analysis shows that the standards in the County of Riverside General Plan would be exceeded under EAPC conditions, at the following locations:

Varner Road & Jack Ivey Drive *LOS F*

At the unsignalized intersection of Varner Road & Jack Ivey Drive, the LOS for the Jack Ivey Drive approach would increase from LOS B under EAP conditions to LOS F under EAPC conditions due to the addition of traffic from related projects and ambient growth traffic, which would not constitute acceptable operating conditions according to County of Riverside thresholds. The 2006 EIR identified LOS F and a significant impact at this location, so the projected EAPC operating condition would not represent a new or substantially more severe impact than identified in the 2006 EIR. It would not represent a substantial increase in the severity of the impact, as the same improvement identified in the EIR would result in this intersection operating at an acceptable LOS (see further discussion below).

Cook Street & I-10 EB Ramps *LOS E*

At the intersection of Cook Street & I-110 EB Ramps the LOS would increase from LOS D under EAP conditions to LOS E under EAPC conditions due to the addition of traffic from related projects and ambient growth traffic, which would not constitute acceptable operating conditions according to County of Riverside thresholds.

The 2006 EIR identified a significant impact (LOS F) for the General Plan Buildout Conditions. This would, therefore, not constitute a new significant environmental impact, or a substantial increase in the severity of a significant impact previously identified in the 2006 EIR.

Varner Road & Berkey Drive *LOS F*

At the unsignalized intersection of Varner Road & Berkey Drive (all-way stop) the LOS would operate at LOS F (the same as for EAP conditions), which would not constitute acceptable operating conditions according to County of Riverside thresholds.

The 2006 Specific Plan EIR identified LOS F conditions. 2006 EIR identified a significant impact at this location. The operating condition at this intersection does not represent a new or substantially more severe impact as the same improvement identified in the EIR, the installation of a traffic signal, would result in this intersection operating at an acceptable LOS (see further discussion below).

City of Palm Desert

Cook Street & Gerald Ford Drive LOS E

At the intersection of Cook Street & Gerald Ford Drive, the LOS would increase from LOS D under EAP conditions to LOS E under EACP conditions due to the addition of traffic from related projects. Because the City has no defined level of service standards in its General Plan, intersections in Palm Desert are reviewed in the context of consistency with applicable policies in the General Plan. The projected traffic conditions would be consistent with the roadway typologies in, and would not require changes to, the City's roadway classifications or cross sections for these streets.

The 2006 EIR identified a significant impact (LOS F) at this location, so the projected operating condition would not represent a new or substantially more severe impact than identified in the 2006 EIR.

Washington Street & Country Club Drive LOS E

At the intersection of Washington Street & Country Club Drive the LOS would be E, the same as under EAP conditions. The projected traffic conditions would be consistent with the roadway typologies in, and would not require changes to, the City's roadway classifications or cross sections for these streets.

This intersection was not analyzed in the 2006 EIR. The EAPC condition would not constitute a new significant environmental impact, or substantial increase in the severity of a significant impact previously identified in the 2006 EIR.

Signal Warrant Analysis

A signal warrant analysis was conducted for the intersections of Varner Road & Jack Ivey Drive, and Varner Road & Berkey Drive (see Appendix I. The analysis shows that a signal would be warranted at both locations under EAPC conditions.

Consistency and Recommended Improvements - Intersections

County of Riverside

Based on the analysis, the following improvements are considered necessary for EAPC conditions.

- *Varner Road & Jack Ivey Drive*

Install new traffic signal. This improvement was identified in the 2006 EIR at this location. This would result in LOS C at the intersection which would be acceptable operating conditions as defined by the General Plan. This analysis assumes the signal would be implemented without any additional roadway improvements, and would operate under split phasing.. Analysis calculations are shown in Appendix I.

- *Varner Road & Berkey Drive*

Install new traffic signal. This improvement was identified in the 2006 EIR at this location. This would result in LOS C at the intersection which would be acceptable operating conditions as defined by the General Plan., This analysis assumes the signal would be implemented without any additional roadway improvements, and would operate under split phasing. Analysis calculations are shown in Appendix I.

- *Cook Street & I-10 EB Ramps* *LOS E*

The 2006 EIR identified the following improvements at this location:

1. Add northbound exclusive right turn lane
2. Restripe eastbound approach from one left turn lane, one thru/right lane, and one right turn lane, to two left turn lanes and one (free) right turn lane.

Implementing these improvements, would improve the LOS to LOS B which would be acceptable operating conditions as defined by the General Plan.

6.4 Recommended Improvements – EAPC Overall Summary

In summary, the above analysis has identified that the following improvements are necessary for the EAPC conditions.

- *Varner Road & Jack Ivey Drive*

Install new traffic signal. This improvement was identified in the 2006 EIR at this location.

- *Varner Road & Berkey Drive*

Install new traffic signal. This improvement was identified in the 2006 EIR at this location. This improvement would be implemented by the Project under EAP conditions.

- *Cook Street & I-10 EB Ramps*

1. Add northbound exclusive right turn lane

2. Restripe eastbound approach from one left turn lane, one thru/right lane, and one right turn lane, to two left turn lanes and one (free) right turn lane.

These improvements were identified in the 2006 EIR at this location.

6.5 Comparison to 2006 EIR

A comparison of intersection conditions with respect to General Plan Consistency in the current study and significant impacts in the 2006 EIR is shown in Table 6.3. The EAPC analysis shows that with the improvements identified above there would be no new significant environmental impacts, or substantial increases in the severity of significant impacts previously identified in the 2006 EIR for EAPC conditions. The EAPC analysis further shows that with the improvements identified above, there would be no further roadway improvements required to provide acceptable operating conditions as defined by the General Plan.

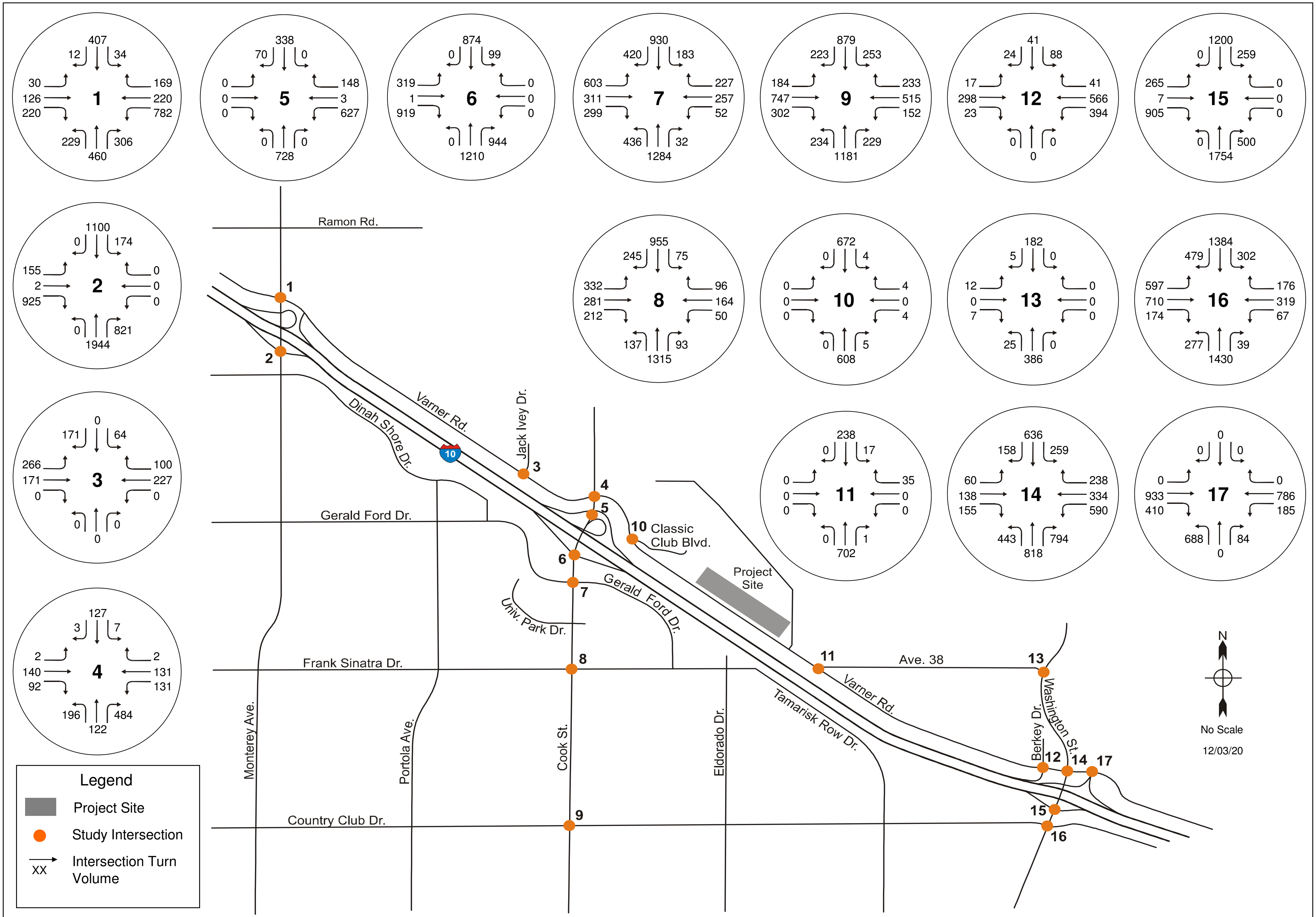


Figure 6.1

EAPC Intersection PM Peak Hour Traffic Volumes

Riverside County Arena

The **Mobility** Group

Transportation Strategies & Solutions

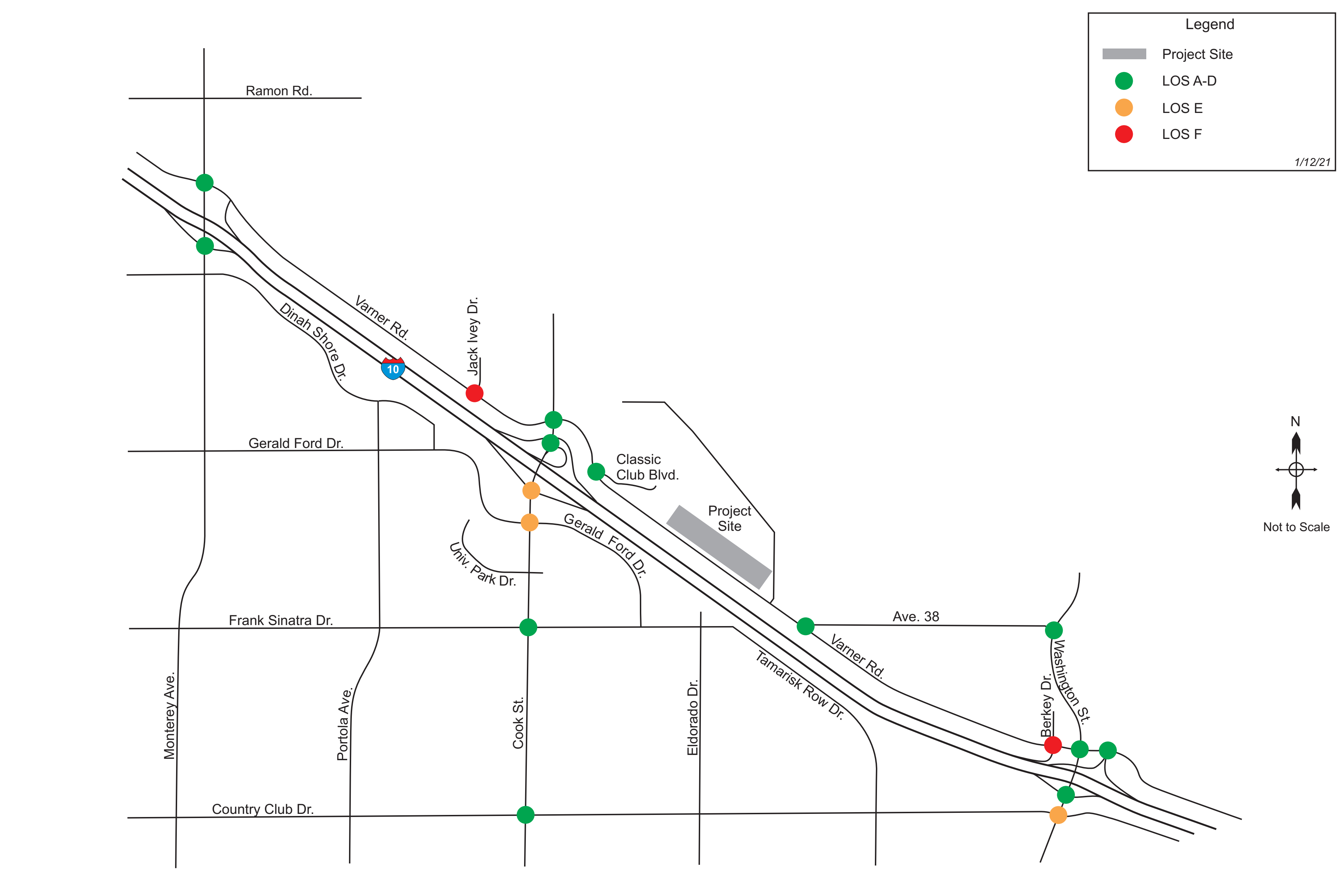


Figure 6.2
EAPC Intersection PM Peak Hour Intersections Levels of Service

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

Table 6.1 Intersection Conditions - EAPC 2023 3/1/2021

No.	*Intersection*	*Traffic Control*	*Existing*		*EAP*		*EAPC*	
			Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	36.7	D	36.8	D	37.2	D
2	Monterey Ave. & I-10 EB Ramps	Signal	15.7	B	17.1	B	50.4	D
3	Varner Rd. & Jack Ivey Dr.	MSS	12.0	B	12.8	B	54.8	F
4	Cook St. & Varner Rd.	Signal	46.3	D	36.2	D	36.2	D
5	Cook St. & I-10 WB Ramps	Signal	14.2	B	13.4	B	15.3	B
6	Cook St. & I-10 EB Ramps	Signal	29.7	C	36.9	D	71.3	E
7	Cook St. & Gerald Ford Dr.	Signal	36.2	D	37.6	D	56.2	E
8	Cook St. & Frank Sinatra Dr.	Signal	17.0	B	18.5	B	29.9	C
9	Cook St. & Country Club Dr.	Signal	33.1	C	34.2	C	39.1	D
10	Varner Rd. & Classic Club Blvd.	Signal	1.9	A	1.6	A	1.6	A
11	Varner Rd. & Avenue 38	MSS	12.5	B	15.7	C	15.9	C
12	Varner Rd. & Berkey Dr.	AWS	22.8	C	50.9	F	52.3	F
13	Washington St. & Avenue 38	MSS	13.9	B	14.4	B	14.8	B
14	Washington St. & Varner Rd.	Signal	27.7	C	29.9	C	29.4	C
15	Washington St. & I-10 EB Ramps	Signal	38.2	D	49.0	D	50.6	D
16	Washington St. & Country Club Dr.	Signal	49.2	D	55.4	E	56.4	E
17	Varner Rd. & I-10 WB Ramps	Signal	15.2	B	18.2	B	18.5	B

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 6.2 Intersection Conditions - EAPC 2023 - With Improvements 3/5/2021

No.	*Intersection*	*Traffic Control*	*Existing*		*EAP*		*EAPC*		*EAPC + Improvement*	
			Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	36.7	D	36.8	D	37.2	D		
2	Monterey Ave. & I-10 EB Ramps	Signal	15.7	B	17.1	B	50.4	D		
3	Varner Rd. & Jack Ivey Dr.	MSS	12.0	B	12.8	B	54.8	F	32.4	C
4	Cook St. & Varner Rd.	Signal	46.3	D	36.2	D	36.2	D		
5	Cook St. & I-10 WB Ramps	Signal	14.2	B	13.4	B	15.3	B		
6	Cook St. & I-10 EB Ramps	Signal	29.7	C	36.9	D	71.3	E	17.9	B
7	Cook St. & Gerald Ford Dr.	Signal	36.2	D	37.6	D	56.2	E		
8	Cook St. & Frank Sinatra Dr.	Signal	17.0	B	18.5	B	29.9	C		
9	Cook St. & Country Club Dr.	Signal	33.1	C	34.2	C	39.1	D		
10	Varner Rd. & Classic Club Blvd.	Signal	1.9	A	1.6	A	1.6	A		
11	Varner Rd. & Avenue 38	MSS	12.5	B	15.7	C	15.9	C		
12	Varner Rd. & Berkey Dr.	AWS	22.8	C	50.9	F	52.3	F	25.3	C
13	Washington St. & Avenue 38	MSS	13.9	B	14.4	B	14.8	B		
14	Washington St. & Varner Rd.	Signal	27.7	C	29.9	C	29.4	C		
15	Washington St. & I-10 EB Ramps	Signal	38.2	D	49.0	D	50.6	D		
16	Washington St. & Country Club Dr.	Signal	49.2	D	55.4	E	56.4	E		
17	Varner Rd. & I-10 WB Ramps	Signal	15.2	B	18.2	B	18.5	B		

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 6.3. Comparison of Arena Consistency Analysis and 2006 EIR Significant Impacts - PM Peak Hour

Intersection[1]	*Arena Analysis*[2] *Inconsistency*				*2006 Specific Plan EIR Significant Impact*			
	EAP[3]	*EAP With Imp.*	*EAPC*	*EAPC With Imp.*[4]	*Opening Year 2007*	*Opening Year 2007 With Imp.*	*General Plan Buildout*	*General Plan Buildout With Imp.*[5]
Varner Road & Jack Ivey Drive	No 12.5 B		Yes 54.8 F	No 32.4 C	Yes 99.9 F	No 19.4 B	Yes 99.9 F	No 22.4 C
Cook Street & I-10 EB Ramps	No 36.9 D		Yes 71.3 E	No 17.9 B	No 30.1 C		Yes 99.9 F	No 20.4 C
Berkey Drive & Varner Road	Yes 50.9 F	No 25.7 C	Yes 52.3 F	No 25.3 C	Yes 47.3 E	No 8.1 A	Yes 70.1 F	No 26.2 C

1 Table shows only those intersections with Arena General Plan Inconsistency, and comparison to 2006 EIR impact determination.
2 Table shows situation without improvements i.e. prior to improvements/mitigations, and with improvements (With Imp.).
3 Table shows delay and LOS for intersections with inconsistency or impact.
4 Current Arena Study demonstrates improvements to resolve inconsistencies at all locations.
5 2006 SP EIR-TS states impacts mitigated at all locations.

7. PROJECT SITE ACCESS

7.1 Project Description

The arena site is located in the new Planning Area 11, adjacent to Varner Road. The Amended Specific Plan concept is shown in Figure 7.1, which shows the site in the context of the Specific Plan and also shows the proposed driveway locations (A1 thru A4). There will be a total of four site driveways. Figure 7.2 shows the layout of the arena site and parking. The arena will provide approximately 3,000 parking spaces on-site.

The County Code requires parking at a ratio of 1 spaces / 30 sq. f. of net assembly area. The net assembly (seating) area for sellout AHL games (9,918) seats is 64,840 sq. ft. The code therefore requires 2,161 spaces for that event type. The net assembly (seating) area for sellout concerts (11,000) seats is 79,450 sq. ft. The code therefore requires 2,648 spaces for that event type. The provision of 3,000 on-site parking spaces will therefore meet code requirements.

This will also be sufficient for the estimated parking demand for all but sellout concerts and events with attendance of 11,000 patrons. For those events, an additional 1,050 spaces will be provided at the Xavier College Preparatory High School, located off Cook Street north of Varner Road, for a total of 4,050 parking spaces. Patrons parking in this location will be shuttled to the arena via the on-site maintenance road running behind the golf course, as shown in Figure 7.3, so will not impact the public street system.

Driveway A1 will serve a small parking lot immediately to the west of the arena, with approximately 426 parking spaces. This lot will be used for VIP patrons (suite and club seat holders). This driveway will also serve as the inbound route for rideshare vehicles and shuttle buses, which will drop-off/pick up on the north side of the arena. Ultimately driveway A1 will also provide access to Planning Area 4 in the Specific Plan.

Driveway A2 will serve a small parking lot immediately south of the arena with approximately 167 parking spaces. This driveway will also serve as the outbound route for rideshare vehicles and shuttle buses. It will also serve the west end of the main parking lot to the east of the arena.

The main parking lot will hold approximately 2,407 general patron parking spaces and will be served by three driveways – A2, A3, and A4, as shown in Figure 7.2. The exact configuration and internal circulation of this parking lot has yet to be determined. For purposes of analysis three sub areas have been defined, and it has been assumed that Subarea I would be accessed via driveway A2, Subarea II would be accessed by driveway A3, and Subarea III would be accessed by driveway

7. PROJECT SITE ACCESS

7.1 Project Description

The arena site is located in the new Planning Area 11, adjacent to Varner Road. The Amended Specific Plan concept is shown in Figure 7.1, which shows the site in the context of the Specific Plan and also shows the proposed driveway locations (A1 thru A4). There will be a total of four site driveways. Figure 7.2 shows the layout of the arena site and parking. The arena will provide approximately 3,000 parking spaces on-site.

The County Code requires parking at a ratio of 1 spaces / 30 sq. f. of net assembly area. The net assembly (seating) area for sellout AHL games (9,918) seats is 64,840 sq. ft. The code therefore requires 2,161 spaces for that event type. The net assembly (seating) area for sellout concerts (11,000) seats is 79,450 sq. ft. The code therefore requires 2,648 spaces for that event type. The provision of 3,000 on-site parking spaces will therefore meet code requirements.

This will also be sufficient for the estimated parking demand for all but sellout concerts and events with attendance of 11,000 patrons. For those events, an additional 1,050 spaces will be provided at the Xavier College Preparatory High School, located off Cook Street north of Varner Road, for a total of 4,050 parking spaces. Patrons parking in this location will be shuttled to the arena via the on-site maintenance road running behind the golf course, as shown in Figure 7.4, so will not impact the public street system.

Driveway A1 will serve a small parking lot immediately to the west of the arena, with approximately 426 parking spaces. This lot will be used for VIP patrons (suite and club seat holders). This driveway will also serve as the inbound route for rideshare vehicles and shuttle buses, which will drop-off/pick up on the north side of the arena. Ultimately driveway A1 will also provide access to Planning Area 4 in the Specific Plan.

Driveway A2 will serve a small parking lot immediately south of the arena with approximately 167 parking spaces. This driveway will also serve as the outbound route for rideshare vehicles and shuttle buses. It will also serve the west end of the main parking lot to the east of the arena.

The main parking lot will hold approximately 2,407 general patron parking spaces and will be served by three driveways – A2, A3, and A4, as shown in Figure 7.2. The exact configuration and internal circulation of this parking lot has yet to be determined. For purposes of analysis three sub areas have been defined, and it has been assumed that Subarea I would be accessed via driveway A2, Subarea II would be accessed by driveway A3, and Subarea III would be accessed by driveway

A3. For the purposes of analysis this results in an approximately even distribution of trips across the three driveways.

The 3,000 on-site parking spaces will be sufficient to accommodate the parking demand of average AHL events (2,790 spaces) and average concert events (2,945 spaces). The total of 4,050 spaces will be sufficient to accommodate the parking demand of an AHL sellout event (3,690 spaces) and a concert sellout event (4,050 spaces).

Employee parking would peak around 140 spaces for average AHL games and up to 170 for concert sellouts. This is a conservative estimate that assumes all employees would drive alone, rather than some who may carpool. Employee parking will occur at the Classic Club, and at the Xavier College School as necessary.

7.2 Site Access Analysis – PM Peak Hour, EPAC Conditions

This chapter addresses site access for the weekday PM peak hour consistent with the preceding analyses. Site access for Pre-Event and Post-Event hours are addressed in Chapter 8 under the TMP analysis.

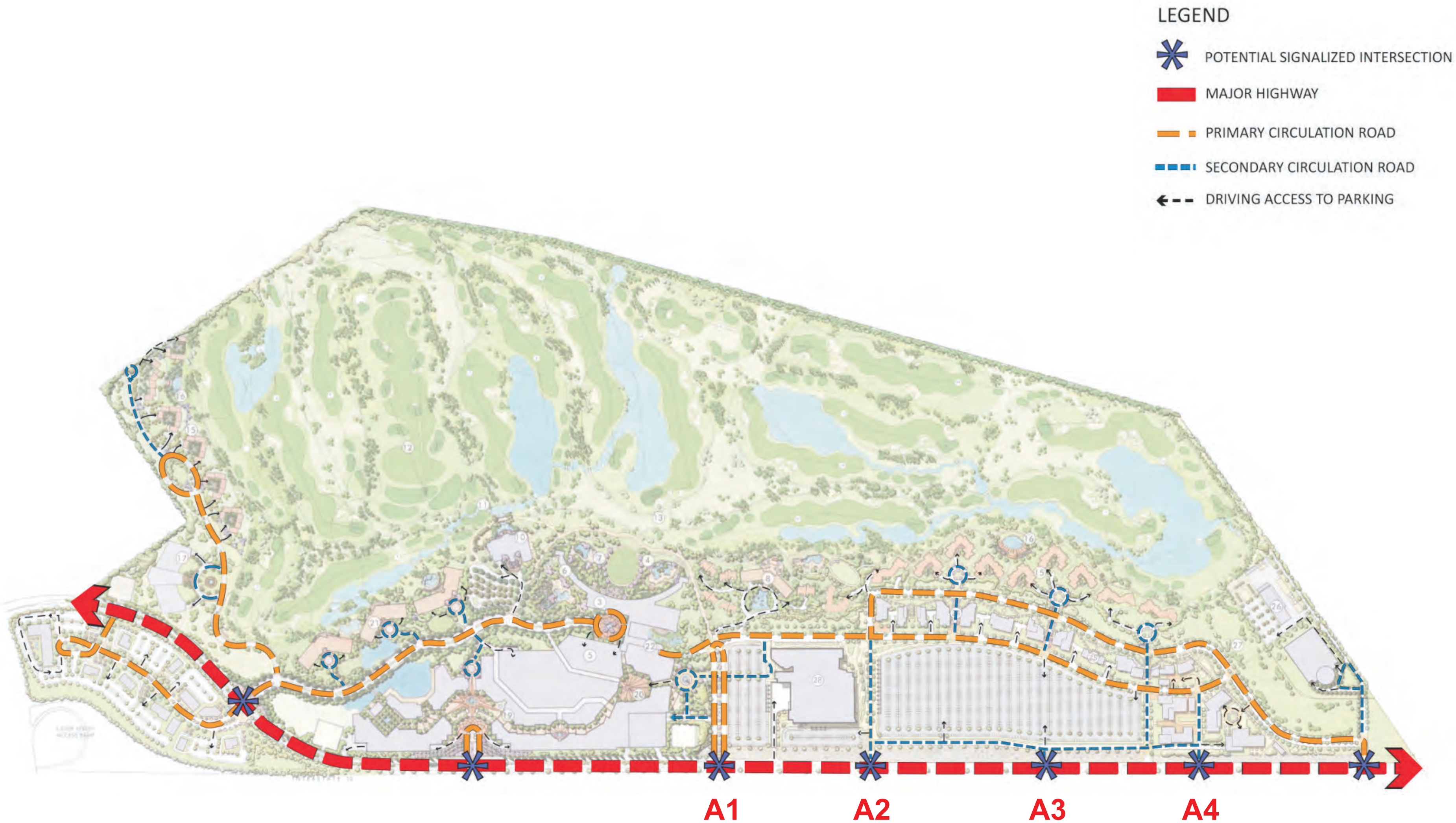
Weekday PM Peak Hour 5:00 – 6:00 pm - EAPC

The site access analysis for the PM peak hour of 5:00 – 6:00 pm addresses an average attendance AHL game, and addresses the EAPC condition, consistent with the analysis in Chapter 6. The traffic volumes are shown in Figure 7.3.

For the purposes of the PM peak hour analysis, the analysis assumes all driveways are unsignalized, and configured with one inbound and one outbound lane, with a stop sign on the driveway approach only. In the PM peak hour 95% of the project traffic will be inbound to the arena.

The driveway intersection analysis is summarized in Table 7.1. Analysis worksheets are shown in Appendix J. Through movements on Varner Road and the eastbound right turns to the driveways will be uncontrolled and will operate at LOS A. Table 7.1 shows results for the controlled movements, the eastbound left turn from Varner Road (inbound to driveway), and the southbound left and right turns from the driveway (outbound). As shown in Table 7.1, all driveway movements will operate satisfactorily (LOS B or LOS C, with minimal queues), and there will be no deficiencies.

It is concluded that during the PM peak hour all driveways would operate satisfactorily without traffic signals and as described above. However, the highest driveway volumes would occur in the Pre-Event and Post-Event hours. These hours will therefore determine the driveway configurations and traffic controls, and are analyzed in the following Chapter 8.



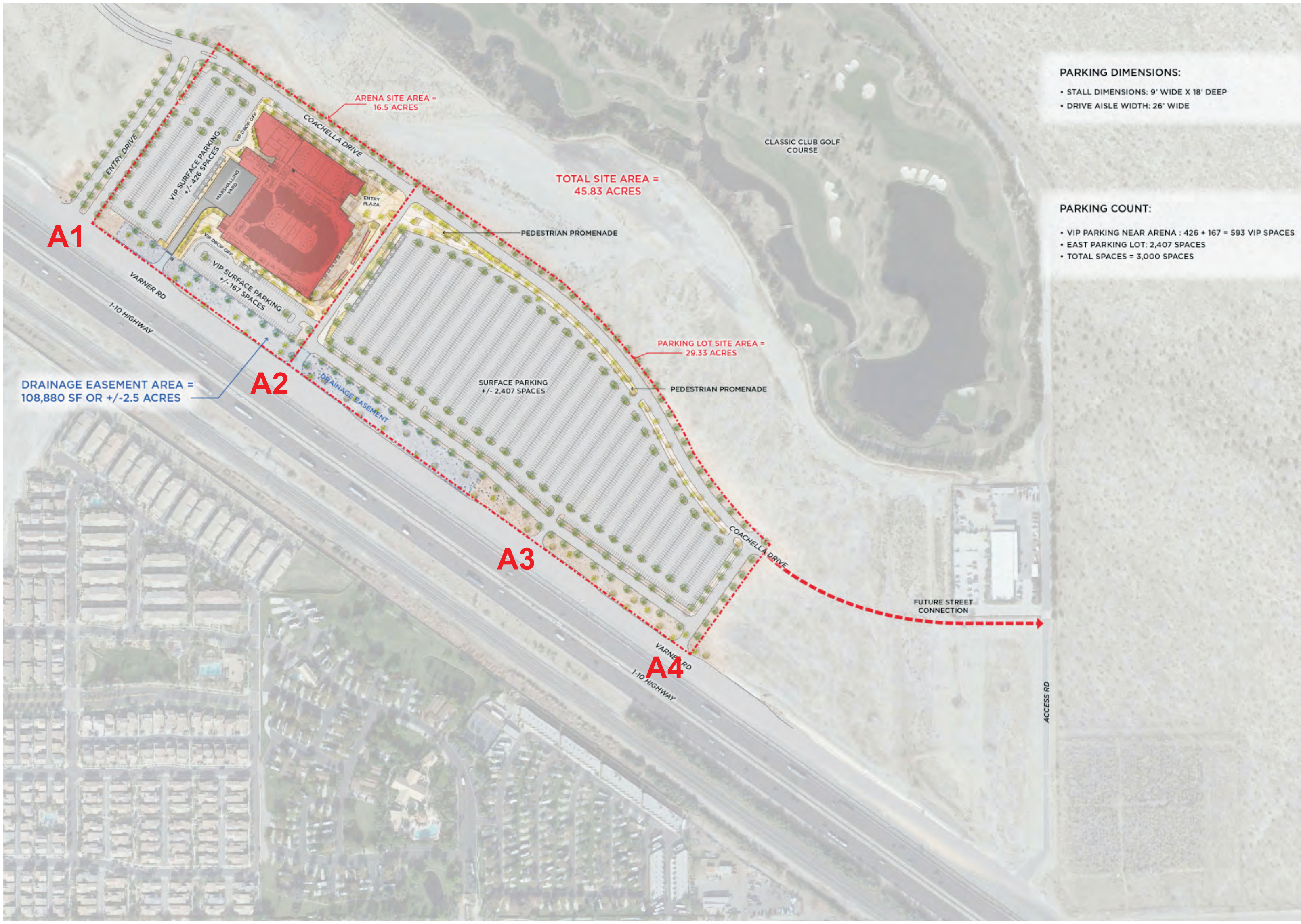
Source: Altum Group

12/28/20

Figure 7.1
Amended Specific Plan Concept – Arena Driveways

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions



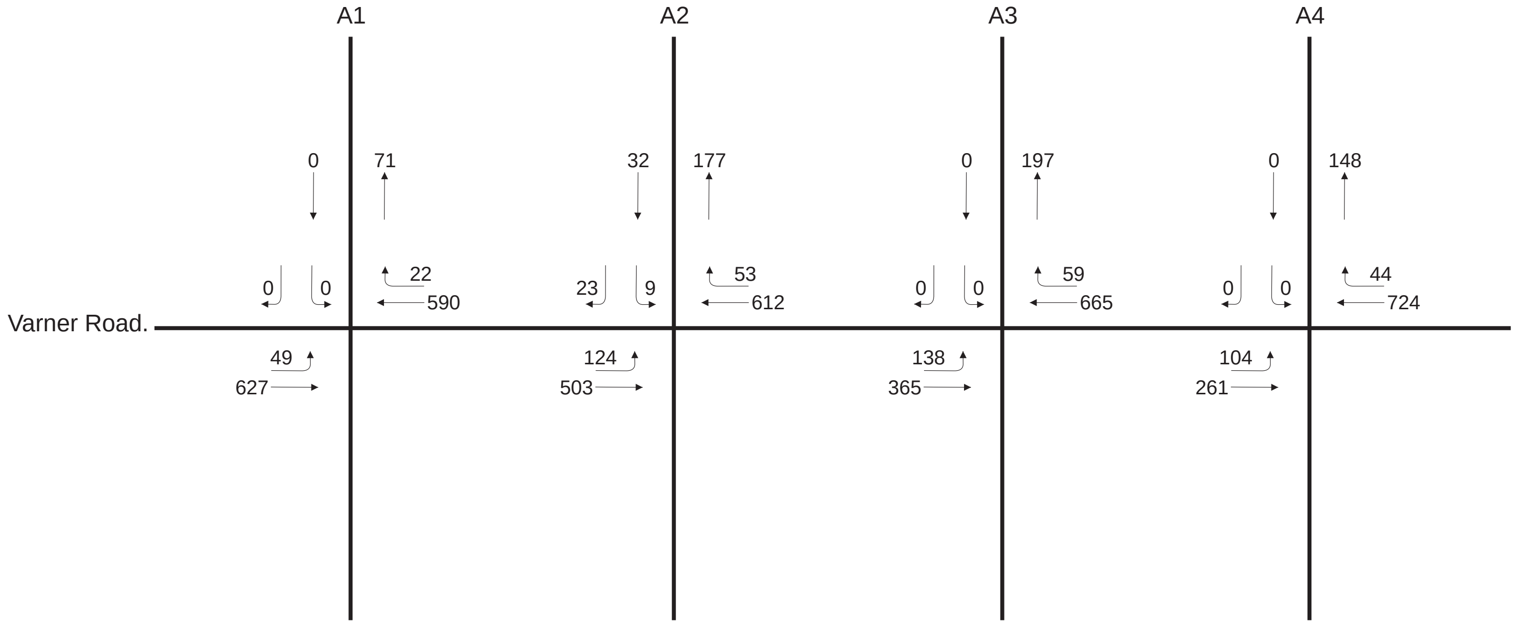
Source: Altum Group

12/29/20

Figure 7.2
Amended Specific Plan Concept – Arena Driveways

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions



Legend

XXX PM peak hour traffic volumes

12/9/20

Figure 7.3
EAPC PM Peak Hour Traffic Volumes at Project Driveways

Riverside County Arena

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3/4/21

Figure 7.4
Remote Parking Shuttle Route

Riverside County Arena

The **Mobility** Group
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Table 7.1 - EAPC - PM Peak Hour Driveway Analysis 12/9/20

Driveway	Approach	Movement	Volume	LOS	95th Percentile Queue (Feet)
A1	Varner Rd	EB Left - In	49	B	4
	Driveway	SB Left - Out	0	-	-
	Driveway	SB Right - Out	0	-	-
A2	Varner Rd	EB Left - In	124	B	25
	Driveway	SB Left - Out	9	C	7
	Driveway	SB Right - Out	23	B	7
A3	Varner Rd	EB Left - In	138	C	32
	Driveway	SB Left - Out	0	-	-
	Driveway	SB Right - Out	0	-	-
A4	Varner Rd	EB Left - In	104	C	24
	Driveway	SB Left - Out	0	-	-
	Driveway	SB Right - Out	0	-	-

8. PRE-EVENT & POST-EVENT ANALYSES FOR DEVELOPING A TRANSPORTATION MANAGEMENT PLAN (TMP)

8.1 Introduction & Overview

This chapter analyzes the Pre-Event and Post-Event hours of events at the arena. While the General Plan consistency analysis and comparison to the 2006 EIR was conducted for the conventional PM peak hour, the Pre-Event and Post Event hours will generate higher trip totals but will occur outside the PM peak hour. Events will typically start at 7:00 pm. AHL games will end around 9:30 pm, and concerts will end around 11:00 pm.

Level of Service Standards

The County of Riverside's thresholds for determining General Plan consistency were used in the preceding PM peak hour analysis. However, these standards were developed for, and apply to, everyday ongoing traffic conditions and roadway operations throughout the year. Unlike residential and commercial development which generate trips on a regular and recurring basis, arena events do not occur every day, but instead are sporadic and temporary in nature. Arena traffic generation occurs during short time periods before and after events, and does not represent typical everyday roadway operating conditions.

The standards also apply to the AM and PM peak hours, whereas the arena Pre-Event and Post-Event hours occur outside the peak hours, and, in the case of the Post-Event hour occur, late in the evening. So while the standard thresholds were used in the preceding PM peak hour analysis, they are not necessarily appropriate to apply for an arena. Given the short duration of peak arena traffic (i.e., two hours per event - the pre-event and post-event hours), LOS E is considered acceptable for temporary traffic volumes during these hours.

Frequency of Arena Events

Unlike development projects for which activity occurs every weekday, events at the arena would occur only on certain days. Sellout events with attendance of more than 8,000 patrons would occur only for thirty (30) days per year (8% of the days in a year). Average attendance events of around 7,500 patrons would occur for only seventy-one (71) days per year (20% of the days in a year).

Purpose of a Transportation Management Plan (TMP)

For the above reasons, where the subsequent analysis identified locations where General Plan thresholds are temporarily not met for the Pre-Event and Post-Event hours, plans may be developed that will more appropriately focus on temporary traffic control and management measures to control traffic operations for the limited hours of an event. These measures would collectively comprise a Transportation Management Plan (TMP). This is a typical approach to addressing the occasional temporary traffic loads in the Pre-Event and Post-Event hours from special event venues, rather than implementing permanent physical transportation improvements, such as street improvements, – which would be unnecessary and largely unused for the vast majority of the time when arena events are not occurring.

The Proposed Project will develop and implement a Transportation Management Plan to address temporary traffic conditions in the Pre-Event and Post-Event hours, and to ensure the efficient coordination and management of event traffic. This would be developed in conjunction with the County of Riverside, City of Palm Desert, and Caltrans, prior to the opening of the arena.

This Transportation Analysis does not set forth a detailed TMP. That is most appropriately completed closer to opening day of the arena, in order to reflect the most recent conditions at that time, and to allow for coordination between the arena and the various transportation agencies.

The analysis in this chapter is conducted for purpose of identifying the types and locations of measures that would be necessary for the efficient management of temporary event traffic and which might be included in a TMP.

2006 Specific Plan EIR

The 2006 Specific Plan EIR addressed a special event scenario: the Bob Hope Chrysler Classic, a PGA sponsored golf event in January of each year. The 2006 EIR addressed Sunday as the final round of the event, with an estimated attendance of 50,000, and analyzed the AM and PM peak hours (effectively the pre-event and post-event hours). The analysis estimated 8,512 AM peak hour trips and 7,837 PM peak hour trips.

By comparison, the arena will have far lower attendance levels (9,918 patrons for an average AHL game and up to 11,000 patrons for a concert), and is estimated to generate considerably lower trip totals (3,166 Pre-Event hour trips and 4,199 Post-Event hour trips for a concert sellout, and 2,175 Pre-Event hour trips and 2,902 Post-Event hour trips for an average AHL game. The arena events will occur more frequently, with 184 events per year, occurring on weekdays and weekends, as described in Chapter 1. A TMP will be developed and implemented, to address Pre-Event and Post-Event traffic.

The 2006 EIR identified significant impacts at the following locations:

- Monterey Avenue & Varner Road
- Cook Street & Varner Road
- Cook Street & I-10 EB Ramps
- Cook Street & Gerald Ford Drive
- Avenue 38 & Varner Road
- Berkey Drive & Varner Road
- Washington Street & Varner Road

The 2006 EIR identified a range of transportation management measures to address event traffic. These measures included:

- Parking Management, including Off-Site Remote Parking
- Event Notices and Information.
- Coordination with Agencies
- Temporary Intersection (Lane) Channelization
- Traffic Control Officers
- Differential Parking Pricing (Vehicle Occupancy)
- Monitoring

The 2006 EIR did not quantify the effects of these measures, and stated that unmitigated impacts would remain at these locations.

8.2 Methodology

For the purposes of facilitating preparation of a TMP, the traffic analysis in this report addresses the following scenarios (as they would produce the highest number of Project trips in the Pre-Event and Post-Event Hours):

- Pre-Event Hour (6:00 pm to 7:00 pm) - Concert Sellout
- Post-Event Hour (11:00 pm to 12:00 am) - Concert Sellout

The analysis uses the same methodologies as identified and used in the preceding chapters of this report. The analysis addresses the weekday Pre-Event and Post-Event hours to present the most conservative analysis, as Saturday background traffic volumes are approximately thirty percent (30%) lower than the weekday[9]. The analysis addresses the EAPC condition to ensure all future background traffic is included in the analysis. The analysis addresses the Concert Sellout scenario in order to identify the maximum level of measures that may be necessary. A reduced set of measures may be more appropriate for average attendance events, and for lower attendance events.

[9] Other Pre-Event and Post Event Hours for Saturday and for AHL games may subsequently be analyzed for the preparation of the actual TMP, but for the purposes of developing a TMP outline for this report, this analysis addresses the higher volume weekday and concert event hours.

It is anticipated those attendance levels can be analyzed subsequently as the TMP is developed in detail.

8.3 Traffic Analysis - Roadway System

8.3.1 Weekday Pre-Event Hour – Concert Sellout – Roadway System

The traffic volume forecasts for study intersections for the Weekday Pre-Event hour, as described in Chapter 4, are shown in Figure 8.1 for Project trips and in Figure 8.2 for total trips.

The intersection analysis is summarized in Table 8.1, which shows the LOS for each intersection, including a comparison to existing conditions. Analysis worksheets are shown in Appendix K.

Key Issues

As shown in Table 8.1, without improvements or TMP measures, four intersections would temporarily operate at LOS F:

- Cook Street & Varner Road
- Cook Street & I-10 WB Ramps
- Cook Street & I-10 EB Ramps
- Varner Road & Berkey Drive

The remaining intersections would operate at LOS D or better, except two which would operate at LOS E.

Significant impacts for all of the intersections identified above were identified in the 2006 EIR at the same or worse levels of service, except for the intersection of Cook Street & I-10 WB Ramps which was not identified as a significant impact. The 2006 EIR identified that significant impacts would remain at the impacted intersections.

Potential TMP Measures

Potential TMP measures to address traffic conditions at these intersections were evaluated and include:

- Modify signal timing (typically longer cycle lengths, and modified splits).
- Potential deployment of traffic control officers (TCOs).
- Temporary lane additions and/or lane reassignments and/or channelizations (with traffic cones/delineators and message boards).
- Utilize changeable message boards to direct incoming patrons to designated routes/areas.

The potential measures identified for each of the intersections for the Pre-Event hour are listed below:

Cook Street & Varner Road

- Modify cycle length.
- Add temporary NB right turn lane (for two total).
- Assign TCO

These measures would result in a temporary LOS E at the intersection.

Cook Street & I-10 WB Ramps

Modify cycle length.
Assign TCO.

These measures would result in a temporary LOS E at the intersection.

Cook Street & I-10 EB Ramps

- Modify cycle length.
- Temporary reconfiguration of EB off-ramp from one left lane, one thru/right lane and one right lane, to two left lanes and one right turn lane.

These measures would result in a temporary LOS E at the intersection.

Varner Road & Berkey Drive

- Install traffic signal.

This measure will be implemented by the Project to address EAP conditions. With the measure, the intersection would operate at LOS C.

Summary of Effectiveness

With deployment of these measures, temporary traffic conditions of LOS E or better would be achieved, as shown in Table 8.2.

Comparison to 2006 EIR

The above TMP measures were also considered in the 2006 EIR (except for explicit references to signal timing, which is effectively addressed by the TCO measure), although without reference to application to specific intersections. The 2006 EIR concluded that significant impacts would remain at event times.

As the above analysis has shown that TMP measures could achieve level of service of LOS E or better, it is therefore concluded that with those types of measures there would be no new significant environmental impacts, or substantial increases in the severity of significant impacts previously identified in the 2006 EIR.

8.3.2 Weekday Post-Event Hour – Concert Sellout – Roadway System

The traffic volume forecasts for study intersections for the Weekday Post-Event hour, as described in Chapter 4, are shown in Figure 8.3 for Project trips and in Figure 8.4 for total trips.

The intersection analysis is summarized in Table 8.3, which shows the LOS for each intersection, including a comparison to existing conditions. Analysis worksheets are shown in Appendix L.

Key Issues

Without improvements or TMP measures, four intersections would operate at LOS F:

- Cook Street & Varner Road
- Cook Street & I-10 WB Ramps
- Varner Road & Berkey Drive
- Washington Street & I-10 EB Ramps

The remaining intersections would operate at LOS D or better.

Significant impacts for all of these intersections were identified in the 2006 EIR at the same levels of service, except for the intersection of Cook Street & I-10 WB Ramps and Washington Street & I-10 EB Ramps, which were not identified as a significant impact. The 2006 EIR identified that significant impacts would remain at the impacted intersections.

Potential TMP measures to address traffic conditions at these intersections were evaluated and include:

- Modify signal timing (typically longer cycle lengths, and modified splits).
- Potential deployment of TCOs.
- Temporary lane reassignments (with traffic cones/delineators and message boards).
- Diversion management of outbound project trips (from Cook Street I-10 WB on-ramp to Berkey Drive I-10 WB on-ramp).

The potential measures identified for each of the intersections for the Post-Event hour are listed below:

Cook Street & Varner Road

- Modify cycle length.
- Assign TCO.
- Add one temporary WB left turn lane (for three total).
- Traffic management (parking lot exits) to divert approximately 900 trips (30% of total) from using I-10 WB on-ramp at Cook Street to use I-10 WB on-ramp at Berkey Drive. Divert trips from WB left turn on Varner Road at Cook Street to EB right turn at Varner Road & Berkey Drive to I-10 WB on-ramp.

These measures would result in a temporary LOS E at the intersection.

Cook Street & I-10 WB Ramps

- Traffic management (parking lot exits) to divert approximately 900 trips (30% of total) from using I-10 WB on-ramp at Cook Street to use I-10 WB on-ramp at Berkey Drive. Divert trips from SB right turn to WB on-ramp at Cook Street, to use EB right turn at Varner Road & Berkey Drive to I-10 WB on-ramp.
- Assign TCO.

These measures would result in a temporary LOS D at the intersection.

Varner Road & Berkey Drive

- Install traffic signal.
- Add one EB right turn lane and one WB left turn lane.
- Add approximately 900 trips diverted from Cook Street I-10 WB on-ramp to Berkey Drive I-10 WB on-ramp.

The traffic signal will be implemented by the Project to address EAP conditions. With the additional measures the intersection would temporarily operate at LOS D.

Washington Street & I-10 EB Ramps

- Modify cycle length.

This measure would result in a temporary LOS C at the intersection.

Summary of Effectiveness

With deployment of these measures, temporary traffic conditions of LOS D or better would result at three of the intersections and temporary LOS E at one intersection, as shown in Table 8.4.

Comparison to 2006 EIR

The above TMP measures were also considered in the 2006 EIR (except explicit references to signal timing, which is effectively addressed by the TCO measure, and diversion management of project trips which affects project trips only), although without reference to application to specific intersections. The 2006 EIR concluded that significant impacts would remain at event times.

The above analysis and comparison to the 2006 EIR is summarized in Table 8.5. As the above analysis has shown that TMP measures could achieve level of service of LOS E or better, it is therefore concluded that with those types of measures there would be no new significant environmental impacts, or substantial increases in the severity of significant impacts previously identified in the 2006 EIR.

8.4 Traffic Analysis – Site Access / Driveways

8.4.1 Weekday Pre-Event Hour – Concert Sellout – Site Access

Site access locations were identified in Chapter 7. For the purposes of the Pre-Event and Post-Event hours, it was assumed the driveways would be configured with two outbound lanes and one inbound lane. The analysis evaluated unsignalized and signalized driveways.

The traffic volume forecasts for driveways for the Weekday Pre-Event Hour, as described in Chapter 4, are shown in Figure 8.5. Note that for the Pre-Event Hour approximately 95% would be inbound to the arena, and 5% would be outbound (returning shuttles and TNC vehicles).

The driveway analysis is summarized in Table 8.6, which shows the LOS for each driveway intersection. The table shows the LOS for controlled approaches if the driveways were unsignalized with stop signs on the driveways, and the overall driveway LOS if the driveway intersections were signalized. Analysis worksheets are shown in Appendix M.

The analysis shows that if the driveways were unsignalized, in the Pre-Event Hour most movements would operate at LOS E or F, particularly the eastbound left turn movements into the driveways.

If the driveways were signalized then all approaches would operate at LOS C or better, except one which would operate at LOS D. Note that the signalized analysis simulates the operation that could occur with a Traffic Control Officer at the driveway intersection, which would be an alternative option to a signal.

8.4.2 Weekday Post-Event Hour – Concert Sellout – Site Access

The traffic volume forecasts for driveways for the Weekday Post-Event hour, as described in Chapter 4, are shown in Figure 8.6. Note that for the Post-Event Hour approximately 95% would be outbound from the arena, and 5% would be inbound (shuttles and TNC vehicles).

The driveway analysis is summarized in Table 8.7, which shows the LOS for each driveway intersection. The table shows the LOS for controlled approaches if the driveways were unsignalized with stop signs on the driveways, and the overall driveway LOS if the driveway intersections were signalized. Analysis worksheets are shown in Appendix N.

The analysis shows that if the driveways were unsignalized, in the Post-Event Hour outbound movements at Driveways A2 and A3 would mostly operate at LOS F.

If the driveways were signalized then all approaches would operate at LOS C or better, with only one approach operating at LOS D. Note that the signalized analysis simulates the operation that could occur with a Traffic Control Officer at the driveway intersection, which could be an alternate option to a signal.

The analysis shows that traffic signals would be warranted at all driveways during the Post-Event Hour. However, they may not meet the 8-hour signal warrants due to the arena traffic only occurring largely for four hours a day and not every day (two hours before and two hours after an event). The use of TCOs would therefore be an alternative option, potentially with channelization of driveway exit lanes into exclusive westbound lanes on Varner Road. It is noted, however, that Varner Road is a six-lane roadway, with no street lighting. Also, for a special land use such as an arena, with high peaking of traffic loads in the pre-event and post-event hours, the one hour warrant may be the most appropriate to determine traffic signal need.

8.4.3 Driveway Summary

The post-event outbound traffic pattern will be the controlling scenario for the driveway lane configuration and method of traffic control. It is recommended that driveways be configured to provide two outbound lanes (to allow separate right turn and left turn movements), and a minimum of one inbound lane. The manner in which the main parking lot is operated during events and how inbound and outbound traffic is managed operationally, as well as the way that driveways may ultimately connect to other specific plan uses, may also determine the type of traffic control. The Specific Plan Amendment identifies potential traffic signals at all four driveways A1 thru A4 (see Figure 7.1). At this time, a traffic signal is assumed at Driveway A1. At Driveways A2, A3, and

A4, traffic signal are potential options, as are TCOs. These alternatives will be explored further in the development of the final TMP.

The site driveways are in in similar locations to those in the Adopted Specific Plan. They are all located on Varner Road which adjacent to or near the Project site is a straight roadway with no curves, so there would be no visibility or sight distance issues at the driveways.

8.4.4 Comparison to 2006 EIR

The 2006 EIR assumed three driveways in the area of the Proposed Project Site, and identified that they would all be signalized, and would operate at LOS B or LOS C. The Specific Plan Amendment identifies four driveways for the Proposed Project site, to efficiently serve the on-site parking lots, and the above analysis has shown they would operate at LOS C or better if signalized or with TCOs. It is therefore concluded that the Project would not cause additional or more severe driveway conditions to those identified in the 2006 EIR.

8.5 Potential TMP Measures

Based on the preceding analysis the principal potential operational TMP measures are therefore the following:

- Modify signal timing, including change cycle length and splits.
- Traffic signal or TCO operation.
- Temporary intersection lane reconfiguration.
- Re-direction / directional management of arena traffic

Other supportive and complimentary measures could include:

- Changeable message signs.
- Fixed signage program.
- Informational materials and Arena Website.

The Proposed Project would therefore develop and implement a Transportation Management Plan. This would be developed in detail in conjunction with the appropriate agencies prior to the opening of the arena.

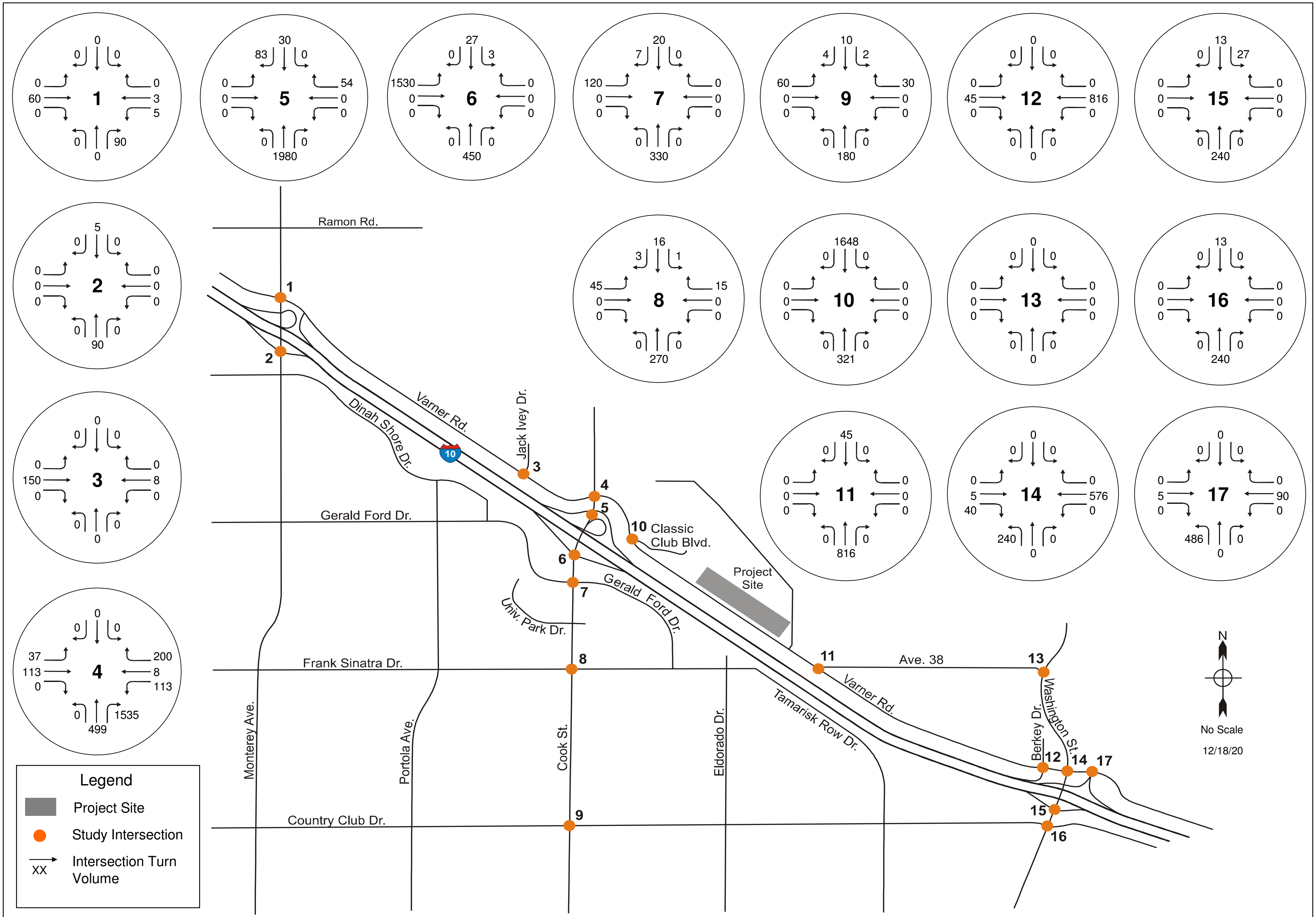


Figure 8.1
Project Trips - Pre-Event Hour - Concert Sellout

Riverside County Arena

The **Mobility** Group
Transportation Strategies & Solutions

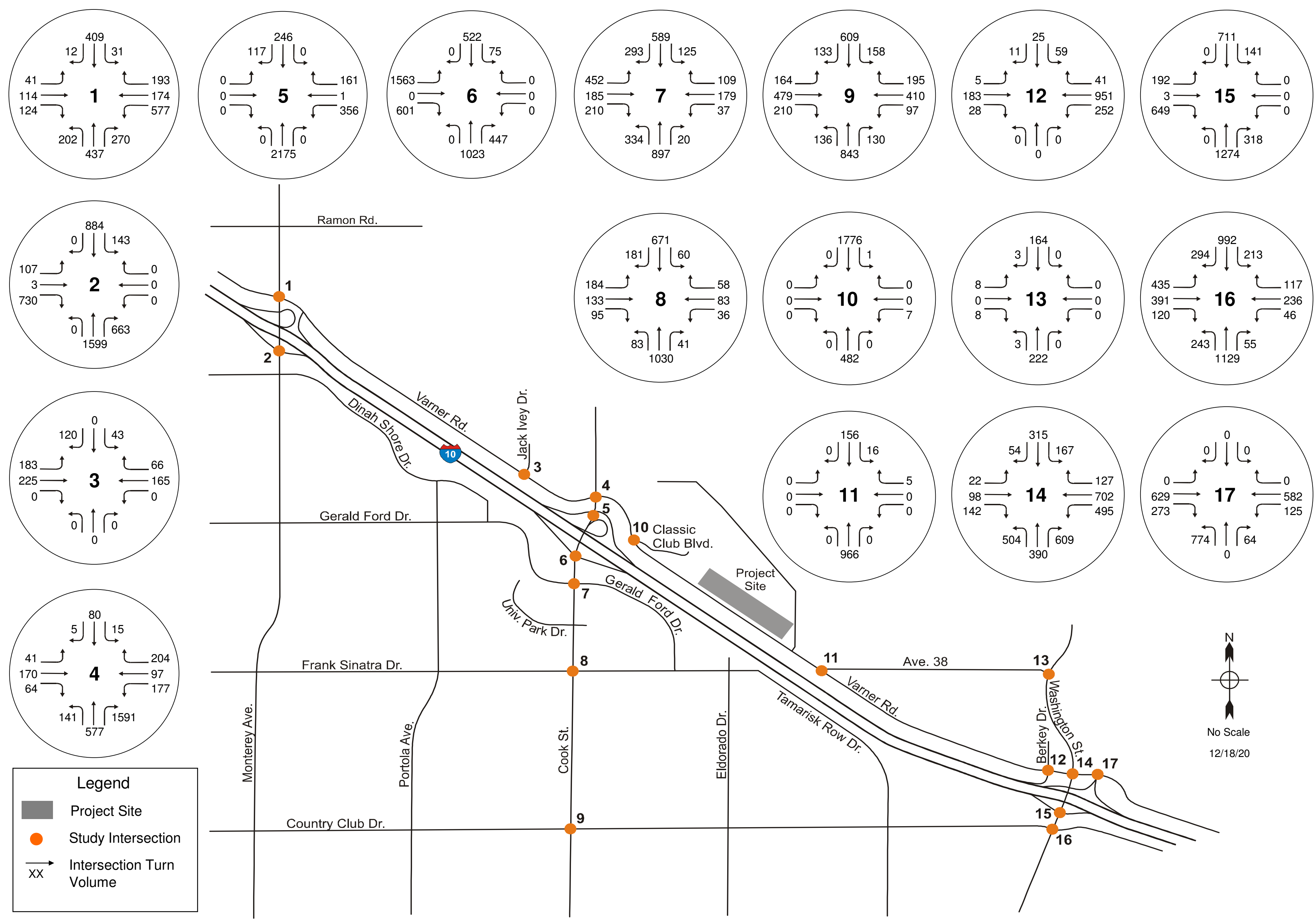


Figure 8.2

EAPC Intersection Pre-Event Hour Traffic Volumes – Concert Sellout

Riverside County Arena

The **Mobility** Group

Transportation Strategies & Solutions

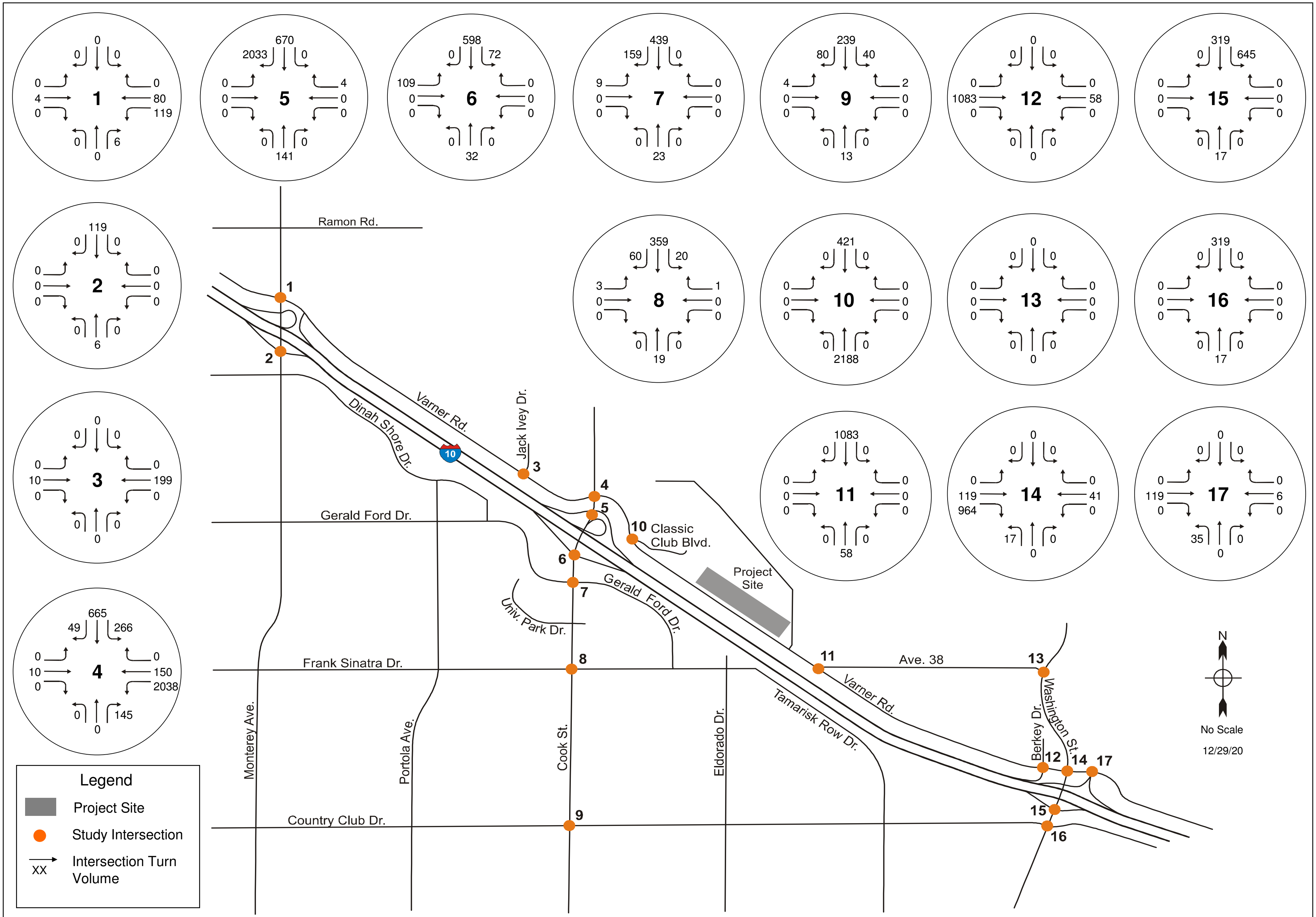


Figure 8.3
Project Trips - Post-Event Hour - Concert Sellout

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

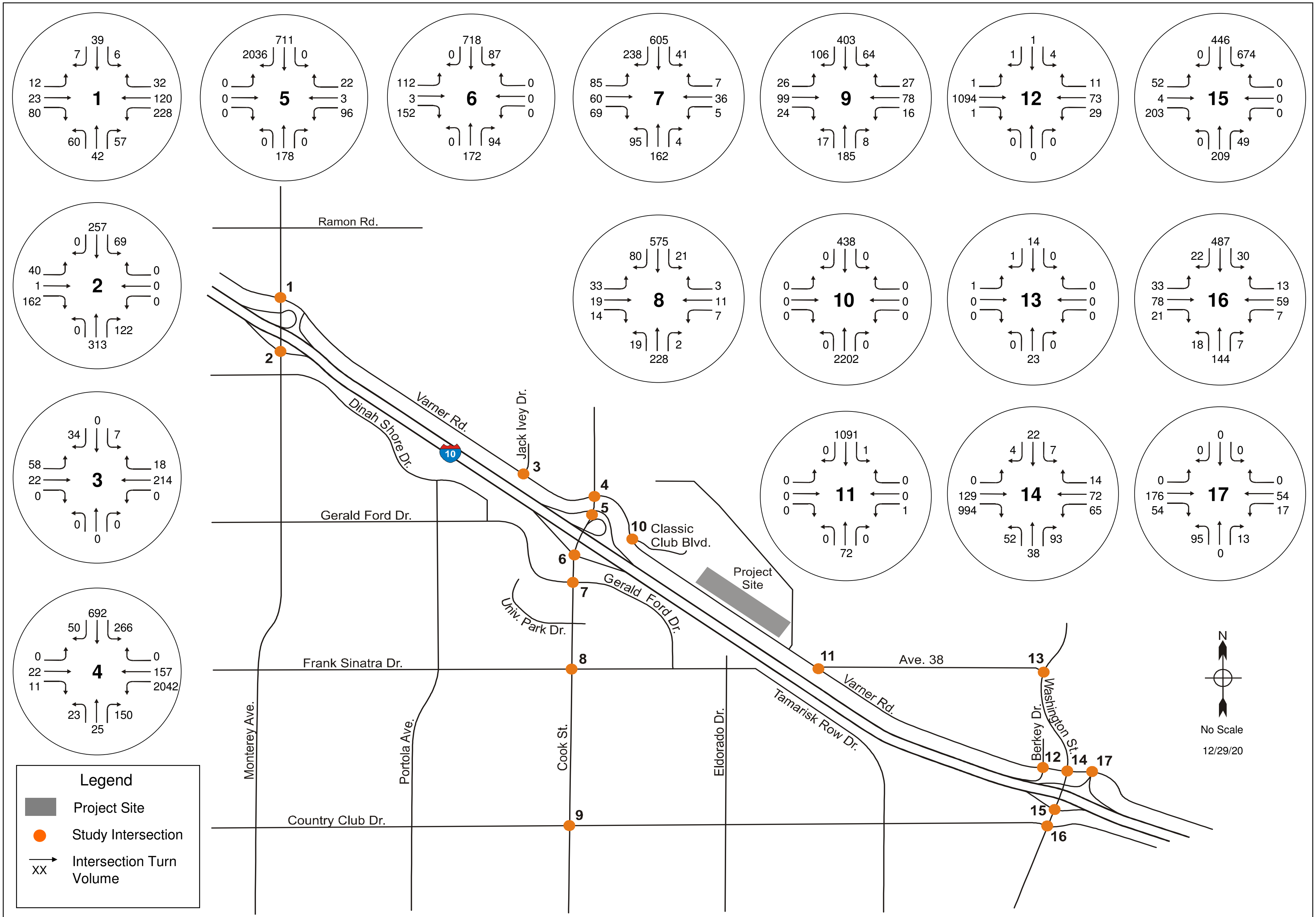


Figure 8.4

EAPC Intersection Post-Event Hour Traffic Volumes – Concert Sellout

Riverside County Arena

The **Mobility** Group

Transportation Strategies & Solutions

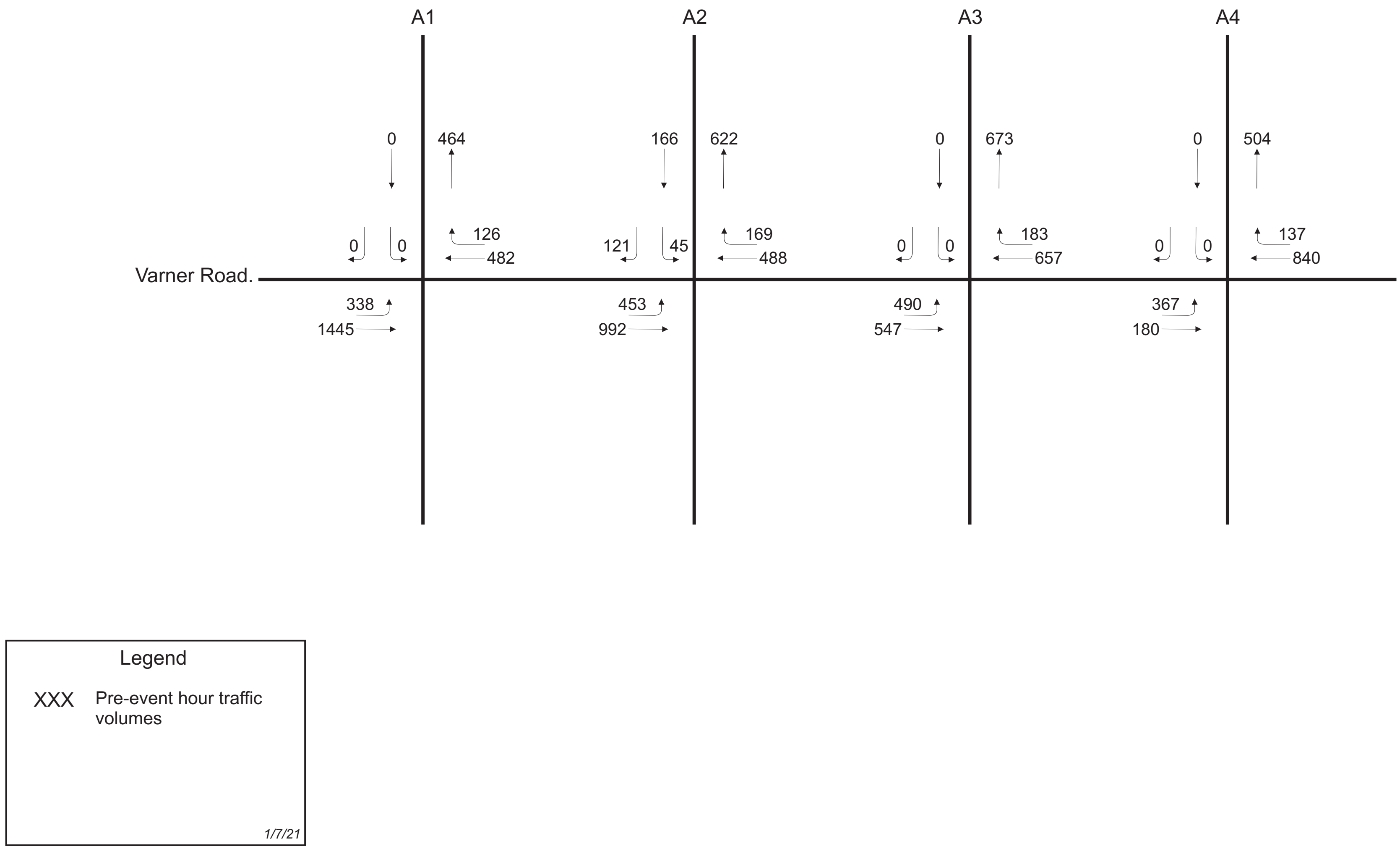
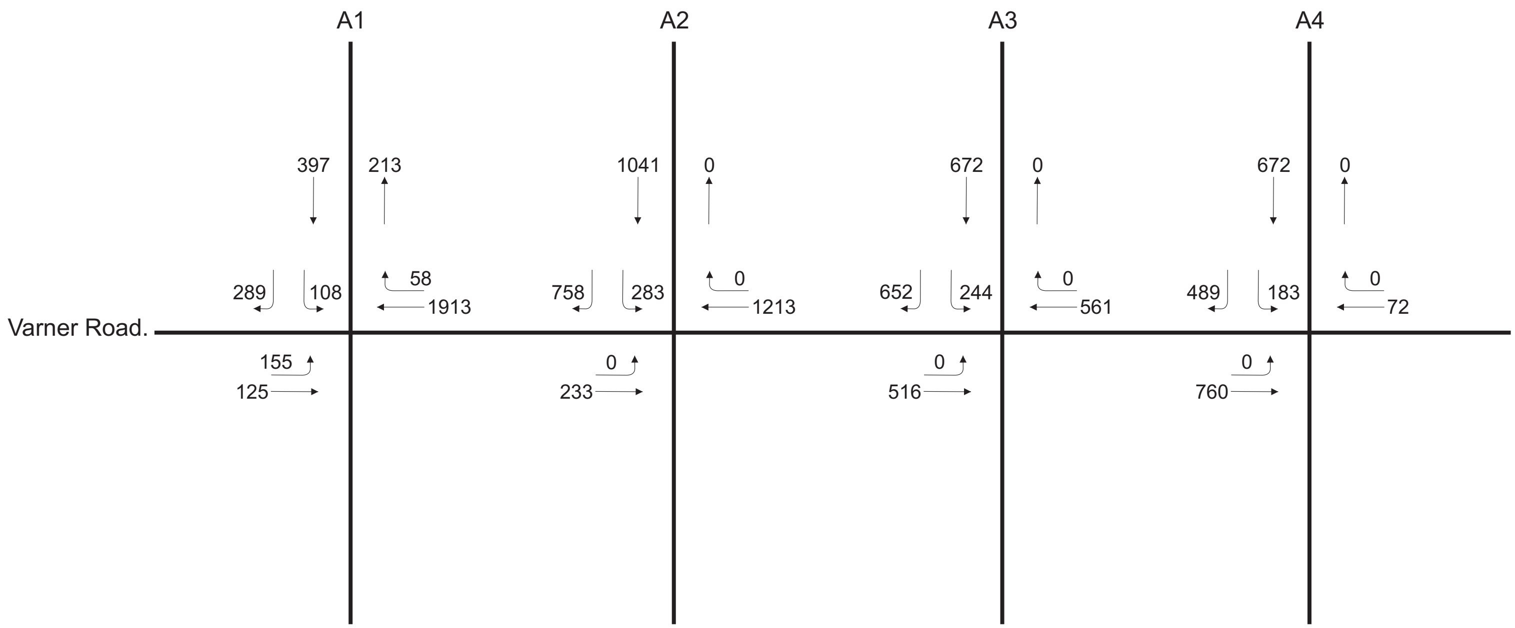


Figure 8.5
EAPC Pre-Event Hour Traffic Volumes at Project Driveways - Concert Sellout

Riverside County Arena

The **Mobility** Group
Transportation Strategies & Solutions



Legend

XXX Post-event hour traffic volumes

1/7/21

Figure 8.6

EAPC Post-Event Hour Traffic Volumes at Project Driveways - Concert Sellout

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

Table 8.1 Intersection Conditions - EAPC 2023 - Weekday Pre-Event - 6-7 PM - Concert Sellout

No.	*Intersection*	*Traffic Control*	*Existing (6:00 - 7:00 PM)*		*EAPC (Concert)*	
			Delay	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	35.6	D	35.5	D
2	Monterey Ave. & I-10 EB Ramps	Signal	18.7	B	31.4	C
3	Varner Rd. & Jack Ivey Dr.	MSS	10.4	B	26.4	D
4	Cook St. & Varner Rd.	Signal	51.6	D	245.6	F
5	Cook St. & I-10 WB Ramps	Signal	14.0	B	86.2	F
6	Cook St. & I-10 EB Ramps	Signal	13.8	B	288.0	F
7	Cook St. & Gerald Ford Dr.	Signal	27.3	C	77.6	E
8	Cook St. & Frank Sinatra Dr.	Signal	12.7	B	15.4	B
9	Cook St. & Country Club Dr.	Signal	29.8	C	32.5	C
10	Varner Rd. & Classic Club Blvd.	Signal	2.2	A	2.1	A
11	Varner Rd. & Avenue 38	MSS	9.3	A	25.1	D
12	Varner Rd. & Berkey Dr.	AWS	11.5	B	110.8	F
13	Washington St. & Avenue 38	MSS	11.9	B	12.4	B
14	Washington St. & Varner Rd.	Signal	24.5	C	73.1	E
15	Washington St. & I-10 EB Ramps	Signal	23.0	C	24.6	C
16	Washington St. & Country Club Dr.	Signal	33.4	C	35.0	D
17	Varner Rd. & I-10 WB Ramps	Signal	11.7	B	16.9	B

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 8.2 Intersection Conditions - EAPC 2023 - Weekday Pre-Event - 6-7 PM - Concert Sellout With TMP Measures

No.	*Intersection*	*Traffic Control*	*Existing (6:00 - 7:00 PM)*		*EAPC (Concert)*		*EAPC (Concert) + TMP Measures*	
			Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	35.6	D	35.5	D		
2	Monterey Ave. & I-10 EB Ramps	Signal	18.7	B	31.4	C		
3	Varner Rd. & Jack Ivey Dr.	MSS	10.4	B	26.4	D		
4	Cook St. & Varner Rd.	Signal	51.6	D	245.6	F	58.4	E
5	Cook St. & I-10 WB Ramps	Signal	14.0	B	86.2	F	72.5	E
6	Cook St. & I-10 EB Ramps	Signal	13.8	B	288.0	F	60.2	E
7	Cook St. & Gerald Ford Dr.	Signal	27.3	C	77.6	E	29.1	C
8	Cook St. & Frank Sinatra Dr.	Signal	12.7	B	15.4	B		
9	Cook St. & Country Club Dr.	Signal	29.8	C	32.5	C		
10	Varner Rd. & Classic Club Blvd.	Signal	2.2	A	2.1	A		
11	Varner Rd. & Avenue 38	MSS	9.3	A	25.1	D		
12	Varner Rd. & Berkey Dr.	AWS	11.5	B	110.8	F	28.2	C
13	Washington St. & Avenue 38	MSS	11.9	B	12.4	B		
14	Washington St. & Varner Rd.	Signal	24.5	C	73.1	E	38.8	D
15	Washington St. & I-10 EB Ramps	Signal	23.0	C	24.6	C		
16	Washington St. & Country Club Dr.	Signal	33.4	C	35.0	D		
17	Varner Rd. & I-10 WB Ramps	Signal	11.7	B	16.9	B		

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 8.3 Intersection Conditions - EAPC 2023 - Weekday Post-Event - 11 PM - 12 AM Concert Sellout

No.	*Intersection*	*Traffic Control*	*Existing (11 PM - 12 AM)*		*EAPC (Concert)*	
			Delay	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	24.5	C	26.1	C
2	Monterey Ave. & I-10 EB Ramps	Signal	11.4	B	10.6	B
3	Varner Rd. & Jack Ivey Dr.	MSS	7.3	A	11.9	B
4	Cook St. & Varner Rd.	Signal	37.6	D	1513.5	F
5	Cook St. & I-10 WB Ramps	Signal	20.4	C	308.8	F
6	Cook St. & I-10 EB Ramps	Signal	12.1	B	12.2	B
7	Cook St. & Gerald Ford Dr.	Signal	20.4	C	17.6	B
8	Cook St. & Frank Sinatra Dr.	Signal	8.6	A	8.5	A
9	Cook St. & Country Club Dr.	Signal	24.5	C	19.4	B
10	Varner Rd. & Classic Club Blvd.	Signal	0.5	A	5.6	A
11	Varner Rd. & Avenue 38	MSS	8.6	A	24.2	C
12	Varner Rd. & Berkey Dr.	AWS	7.6	A	365.6	F
13	Washington St. & Avenue 38	MSS	8.7	A	8.7	A
14	Washington St. & Varner Rd.	Signal	22.0	C	49.9	D
15	Washington St. & I-10 EB Ramps	Signal	13.9	B	93.5	F
16	Washington St. & Country Club Dr.	Signal	22.5	C	17.3	B
17	Varner Rd. & I-10 WB Ramps	Signal	13.3	B	11.8	B

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 8.4 Intersection Conditions - EAPC 2023 - Weekday Post-Event - 11 PM - 12 AM - Concert Sellout With TMP Measures

No.	*Intersection*	*Traffic Control*	*Existing (11 PM - 12 AM)*		*EAPC (Concert)*		*EAPC (Concert) + TMP Measures*	
			Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1	Monterey Ave. & Varner Rd.	Signal	24.5	C	26.1	C		
2	Monterey Ave. & I-10 EB Ramps	Signal	11.4	B	10.6	B		
3	Varner Rd. & Jack Ivey Dr.	MSS	7.3	A	11.9	B		
4	Cook St. & Varner Rd.	Signal	37.6	D	1513.5	F	67.1	E
5	Cook St. & I-10 WB Ramps	Signal	20.4	C	308.8	F	43.2	D
6	Cook St. & I-10 EB Ramps	Signal	12.1	B	12.2	B		
7	Cook St. & Gerald Ford Dr.	Signal	20.4	C	17.6	B		
8	Cook St. & Frank Sinatra Dr.	Signal	8.6	A	8.5	A		
9	Cook St. & Country Club Dr.	Signal	24.5	C	19.4	B		
10	Varner Rd. & Classic Club Blvd.	Signal	0.5	A	5.6	A		
11	Varner Rd. & Avenue 38	MSS	8.6	A	24.2	C		
12	Varner Rd. & Berkey Dr.	AWS	7.6	A	365.6	F	36.4	D
13	Washington St. & Avenue 38	MSS	8.7	A	8.7	A		
14	Washington St. & Varner Rd.	Signal	22.0	C	49.9	D		
15	Washington St. & I-10 EB Ramps	Signal	13.9	B	93.5	F	30.0	C
16	Washington St. & Country Club Dr.	Signal	22.5	C	17.3	B		
17	Varner Rd. & I-10 WB Ramps	Signal	13.3	B	11.8	B		

MSS = Minor Street Stop Control
AWS = All-Way Stop Control

For signal and AWS, overall average delay and LOS shown.
For MSS, delay and LOS for worst movement shown.

Table 8.5. Comparison of Arena Consistency Analysis and 2006 EIR Significant Impacts – Event Pre-Event & Post-Event Hours

Intersection[1]	*Improvement Status*	*Arena Analysis Inconsistency*[2]		*2006 EIR, 2010 Interim Yr Major Event*[3] *Significant Impact*		*2006 EIR, 2015 Buildout Yr Major Event Significant Impact*	
		Pre-Event	*Post-Event*	*AM*	*PM*	*AM*	*PM*
Cook Street & Varner Road	No Improvements[4]	Yes 246 F	Yes 1,513 F	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F
	With TMP Measures[5]	No 58.4 E	No 67.1 E	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F
Cook Street & I-10 WB Ramps	No Improvements	Yes 86.2 F	Yes 309 F	No	No	No	No
	With TMP Measures	No 72.5 E	No 43.2 D	No	No	No	No
Cook Street & I-10 EB Ramps	No Improvements	Yes 288 F	No 12.2 B	Yes 99.9 F	No	Yes 99.9 F	No
	With TMP Measures	No 60.2 E	No 12.2 B	Yes 99.9 F	No	Yes 99.9	No

¹ Table shows only those intersections with Arena General Plan Inconsistency, and comparison to 2006 EIR impact determination.
² Table shows situation without improvements i.e. prior to improvements/mitigations, and with TMP Measures.
³ 2006 SP EIR-TS states impacts remain unmitigated at all locations.
⁴ Table shows delay and LOS for intersections.
⁵ Current Arena Study anticipates TMP Measures to resolve inconsistencies at all locations to temporary LOS E for Pre-Event and Post-Event hours.

Intersection[1]	*Improvement Status*	*Arena Analysis Inconsistency*[2]		*2006 EIR, 2010 Interim Yr Major Event*[3] *Significant Impact*		*2006 EIR, 2015 Buildout Yr Major Event Significant Impact*	
		Pre-Event	*Post-Event*	*AM*	*PM*	*AM*	*PM*
Varner Road & Berkey Drive	No Improvements	Yes 110.8 F	Yes 365.6 F	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F	Yes 99.9 F
	With TMP Measures	No 28.2 C	No 36.4 D	No 20.9 C	Yes 99.9 F	No	Yes 99.9 F
Washington Street & I-10 EB Ramps	No Improvements	No 24.6 C	Yes 93.5 F	No	No	No	No
	With TMP Measures	No 24,6 C	No 30.0 C	No	No	No	No

Table 8.6 - EAPC - Pre-Event 6-7 PM Driveway Analysis - Concert

Driveway	Approach	Movement	Volume	Stop Control			Signal Control		
				LOS	Overall LOS	95th Percentile Queue (Feet)	LOS	Overall LOS	95th Percentile Queue (Feet)
A1	Varner Rd	EB Left - In	338	NA	NA	NA	C	A	110
	Driveway	SB Left - Out	0				-		-
	Driveway	SB Right - Out	0				-		-
A2	Varner Rd	EB Left - In	453	E	--	277	D	B	324
	Driveway	SB Left - Out	45	F		176	C		29
	Driveway	SB Right - Out	121	B		23	C		89
A3	Varner Rd	EB Left - In	490	F	--	547	C	B	295
	Driveway	SB Left - Out	0	-		-	-		-
	Driveway	SB Right - Out	0	-		-	-		-
A4	Varner Rd	EB Left - In	367	F	--	363	C	B	232
	Driveway	SB Left - Out	0	-		-	-		-
	Driveway	SB Right - Out	0	-		-	-		-

Table 8.7 - EAPC - Post-Event 11 PM - 12 AM Driveway Analysis - Concert

Driveway	Approach	Movement	Volume	Stop Control			Signal Control		
				LOS	Overall LOS	95th Percentile Queue (Feet)	LOS	Overall LOS	95th Percentile Queue (Feet)
A1	Varner Rd	EB Left - In	155	NA	NA	NA	C	B	53
	Driveway	SB Left - Out	108				B		58
	Driveway	SB Right - Out	289				C		197
A2	Varner Rd	EB Left - In	0	--	--	--	--	C	--
	Driveway	SB Left - Out	283	F		535	B		144
	Driveway	SB Right - Out	758	F		1,607	C		632
A3	Varner Rd	EB Left - In	0	--	--	--	--	C	--
	Driveway	SB Left - Out	244	D		119	B		137
	Driveway	SB Right - Out	652	F		635	D		572
A4	Varner Rd	EB Left - In	0	--	--	--	--	B	--
	Driveway	SB Left - Out	183	B		35	B		78
	Driveway	SB Right - Out	489	C		108	C		301

9. FREEWAY ANALYSIS

9.1 Introduction

The 2006 EIR did not address freeway facilities. For the purposes of this study, the freeway system is analyzed for the following facilities:

- Freeway Mainline Segments
- Freeway Off-Ramps
- Freeway Merge/Diverge Areas

The freeway analysis locations are shown in Figure 1.5. The freeway mainline analysis utilizes the HCM 6 methodology and uses the HCM-CALC software. The analysis is based on density (passenger cars per mile per lane) to determine level of service. Table 9.1 shows the breakdown and description of levels of service for the freeway mainline. Freeway mainline traffic data was obtained from the Caltrans Performance Management System (PeMS). The most recent available data from October 2019 was used and increased by two percent (2%) to reflect 2020 conditions.

The freeway merge/diverge areas address the segments on the freeway where off-ramps diverge from the mainline and where on-ramps merge with the mainline. Levels of service are expressed in passenger cars per mile per lane. Table 9.2 shows the breakdown and descriptions of levels of service. Traffic data was obtained from the mainline volumes and the ramp volumes from the intersection traffic counts. The analysis utilizes the HCM 6 methodology and uses the HCM-CALC software.

The freeway off-ramps analysis addresses off-ramp queuing and the potential for queues on an off-ramp to extend back to the mainline freeway. The analysis calculates the 95th percentile queue, and calculates the ramp storage capacity from the off-ramp intersection to the gore point with the mainline. Off-ramp traffic volumes were obtained from the intersection traffic counts. The analysis utilizes the HCM 6 methodology and uses the Vistro software.

9.2 Minimum Level of Service Standards & Performance Criteria

Subsequent to the implementation of SB 743, roadway level of service can no longer be used as a determinant for identifying significant transportation impacts for CEQA purposes. Rather a vehicles miles traveled (VMT) metric must be used. The analysis of VMT is addressed in a separate document.

Table 9.1 Freeway Mainline Levels of Service

Level of Service	*Density Range (cars/mi/lane)*	*Description*
A	0.0 – 11.0	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.
B	11.1 – 18.0	Reasonably free flow operations. Vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.
C	18.1 – 26.0	Traffic flow at near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service quality will be substantial. Queues may be expected to form behind significant blockages.
D	26.1 – 35.0	Speeds begin to decline with increasing flows, and densities increase more quickly. Freedom to maneuver is seriously limited. Minor incidents can be expected to create queueing as the traffic stream has little space to absorb disruption.
E	35.1 – 45.0	Operation at or near capacity. Virtually no usable gaps in the traffic stream with little room to maneuver. Any disruption in the traffic stream can establish a disruptive wave that propagates throughout the upstream traffic stream. Incidents can be expected to produce a serious breakdown and substantial queuing.
F	> 45.0	Uneatable flow. Breakdowns in vehicle flow can occur for a number of reasons. And cause substantial queuing.

Source: HCM 6

Table 9.2 Freeway Merge/Diverge Levels Of Service

Level of Service	*Density Range (cars/mi/lane)*
A	10.00 or less
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand exceeds capacity

Source: HCM 6

Since the enactment of SB 743, Caltrans has released new transportation study guidelines[10] that no longer focus on traffic on roadways and levels of service, but determine CEQA transportation impacts based on VMT. This new document has replaced the 2002 Traffic Study Guidelines[11]. In addition to assessing VMT, Caltrans has also focused on the evaluation of off-ramps and the potential for off-ramp queues to back up to the mainline freeway and potentially cause a hazard.

9.3 Performance Standards and Criteria

As discussed above, Caltrans concerns have recently focused on evaluating safety conditions on off-ramps, to address whether off-ramp queues could potentially back up to the mainline freeway and impact the mainline freeway lanes. Therefore the freeway analysis will report on mainline segment and merge/diverge segment levels of service, and it will focus on off-ramp queue analysis to assess if the queue on the off-ramp backs to the ramp gore point with the mainline (i.e., would back into the mainline traffic lane), potentially causing a hazard.

The off-ramp intersections with surface streets in the study are analyzed separately under the intersection analyses in previous chapters. As they are located in the County of Riverside, the County thresholds are used for intersections that include freeway off-ramps.

9.4 Context for Consistency Analysis

Unlike development projects for which activity occurs every weekday, events at the arena would occur only on certain days. The analysis has addressed an average AHL game attendance of 7,500 patrons. Based on the event descriptions in Chapter 1, there would be approximately 71 events per year that would occur with attendance at that level. There would also be approximately 30 events with a higher attendance of up to 11,000 patrons (addressed under the TMP analysis in Chapter 8), for a total of 101 events with attendance of 7,500 patrons or greater. It is projected that half of the events would occur on weekdays, or approximately 50 events. The traffic conditions described in the analysis would therefore not occur every weekday, but would occur on only about 19% of weekdays throughout the year.

9.5 Existing Conditions – Freeways – PM Peak Hour

The freeway system was analyzed for the PM peak hour, per the methodology described in Chapter 2. Existing traffic volumes used in the analyses (as described in Chapter 2.2) are shown in Figure 9.1 and Figure 9.2.

[10] *Vehicle Miles Travel-Focused Transportation Impact Study Guide, State of California Department of Transportation, May 20, 2020.*

[11] *Guidelines for the Preparation of Traffic Impact Studies, State of Californian Department of Transportation, 2002*).

Freeway Segment Analysis

The freeway segment analysis is summarized in Table 9.3. All freeway segments are currently operating acceptably (LOS D or better) at LOS B or LOS C. LOS worksheets are shown in Appendix O.

Freeway Merge/Diverge Areas

The freeway merge/diverge area analysis is summarized in Table 9.4. The results show that all the areas currently operate at LOS C or better. They are operating acceptability at better than LOS D. Analysis worksheets are shown in Appendix O.

Freeway Off-Ramp Analysis

The freeway off-ramp analysis is summarized in Table 9.5, which shows for each off-ramp the number of lanes and the storage length and queues for each movement and for the ramp as a whole. Queue analysis worksheets are shown in Appendix O. The results show that for all off-ramps the off-ramp queues for existing conditions in the PM peak hour are well below the available storage capacity, with no backups occurring to the freeway mainline.

9.6 Future Conditions – EAP – Freeways – PM Peak Hour

This section addresses existing plus ambient growth plus project traffic (EAP) conditions for 2023 when the arena is expected to open. Forecasted traffic volumes (as described in Chapter 4) are shown in Figure 9.3 and Figure 9.4.

Freeway Segment Analysis

The freeway segment analysis is summarized in Table 9.6. Analysis worksheets are shown in Appendix P. Freeway segment levels of service would remain the same as existing conditions or would increase from LOS B to LOS C. All freeway segments would operate acceptably at LOS B or LOS C. The Project would not cause substantial change or degradation in freeway operations under EAP conditions.

Freeway Merge/Diverge Areas

The freeway merge/diverge area analysis is summarized in Table 9.7. Analysis worksheets are shown in Appendix P. The results show the LOS would remain the same at four locations and would worsen by one LOS at two locations. All the areas would operate at LOS C or better, except for one location at LOS D. All locations would operate acceptably at LOS D or better. The Project would not cause substantial change or degradation in freeway operations under EAP conditions.

Freeway Off-Ramp Analysis

The freeway off-ramp analysis is summarized in Table 9.8, which shows for each off-ramp the number of lanes and the storage length and queues for each movement and for the ramp as a whole. Queue analysis worksheets are shown in Appendix P. The results show that for all off-ramps the off-ramp queues in the PM peak hour for EAP conditions would be below the available storage capacity, with no backups occurring to the freeway mainline.

9.7 Future Conditions – EAPC - Freeways – PM Peak Hour

This section addresses existing plus ambient growth plus project plus cumulative project (EAPC) traffic conditions for 2023 when the arena is expected to open. Forecasted traffic volumes (as described in Chapter 4) are shown in Figure 9.5 and Figure 9.6.

Freeway Segment Analysis

The freeway segment analysis is summarized in Table 9.9. LOS worksheets are shown in Appendix Q. Freeway segment levels of service would remain the same as existing conditions or would increase from LOS B to LOS C, and would operate acceptably (LOS D or better). There would be no substantial changes or degradation in freeway segment operations under EAPC conditions.

Freeway Merge/Diverge Areas

The freeway merge/diverge area analysis is summarized in Table 9.10. Worksheets are shown in Appendix Q. The results show the LOS would remain the same as existing conditions at four locations and would worsen by one LOS at two locations. All the areas would operate at LOS C or better, except one location at LOS D. T All locations would operate acceptably at LOS D or better. There would be no substantial changes or degradation in freeway merge/diverge areas under EAPC conditions.

Freeway Off-Ramp Analysis

The freeway off-ramp analysis is summarized in Table 9.11, which shows for each off-ramp the number of lanes and the storage length and queue length for each movement and for the ramp as a whole. Worksheets are shown in Appendix Q. The results show that for all off-ramps the off-ramp queues in the PM peak hour for EAPC conditions would be below the available storage capacity, with no backups occurring to the freeway mainline, except for one movement – the eastbound through/right movement at the I-10 EB off-ramp at Cook Street. However, as shown on Table 9.11, the available storage capacity of the overall ramp would not be exceeded and the queue would not back up to the mainline freeway.

Recommended Improvements - Freeways

Based on the analysis, there would be no substantial changes or degradation in freeway operations or off-ramp queues exceeding available storage, and therefore no improvements would be necessary for the PM peak hour EAPC conditions.

9.8 Pre-Event & Post-Event Analyses for Developing A Transportation Management Plan (TMP)

9.8.1 Introduction & Overview

This section provides an analysis of the Pre-Event and Post-Event hours of events at the arena. While the intersection analysis for General Plan consistency and comparison to the 2006 EIR was conducted for the conventional PM peak hour, the Pre-Event and Post-Event hours will generate higher trip totals but will occur outside of the PM peak hour. Events will typically start at 7:00 pm. AHL games will end around 9:30 pm, and concerts would end around 11:00 pm.

For the purposes of facilitating preparation of a TMP, the traffic analysis in this report addresses the following scenarios (as they would produce the highest number of Project trips in the Pre-Event and Post-Event Hours):

- Pre-Event Hour (6:00 to 7:00 pm) - Concert Sellout
- Post-Event Hour (11:00 pm to 12:00 am) - Concert Sellout

The analysis uses the same methodologies as identified and used in the preceding chapters of this report. The analysis addresses the weekday Pre-Event and Post-Event hours to present the most conservative analysis, as Saturday background traffic volumes are approximately thirty percent (30%) lower than the weekday[12]. The analysis addresses the EAPC condition to ensure all future background traffic is included in the analysis. The analysis addresses the Concert Sellout scenario in order to identify the maximum level of measures that may be necessary. A reduced set of measures may be more appropriate for average attendance events, and for lower attendance events. It is anticipated those attendance levels can be analyzed subsequently as the TMP is developed in detail.

The traffic volumes for the Concert Sellout EAPC conditions are shown in Figures 9.7 and 9.8 for the Pre-Event Hour and in Figures 9.9 and 9.10 for the Post-Event Hour.

[12] Other Pre-Event and Post Event Hours for Saturday and for AHL games may subsequently be analyzed for the preparation of the actual TMP, but for the purposes of developing a TMP outline for this report, the analysis addresses the higher volume weekday and concert event hours.

9.8.2 Freeway Analysis – Pre-Event Hour – Concert Sellout

Freeway Segments

The freeway segment analysis is summarized in Table 9.12 which also shows existing conditions. LOS worksheets are shown in Appendix R. Freeway segments would operate at LOS C or better, except for one segment at LOS D. There would be no substantial changes or degradation in freeway segment operations during the Concert Sellout Pre-Event Hour.

Freeway Merge/Diverge Areas

The freeway merge/diverge area analysis is summarized in Table 9.13, which also shows existing conditions. Worksheets are shown in Appendix R. All the areas would operate acceptably at LOS C or better. There would be no substantial changes or degradation in freeway merge/diverge areas under Concert Sellout Pre-Event Hour conditions.

Freeway Off-Ramps

The freeway off-ramp analysis is summarized in Table 9.14, which shows for each off-ramp the number of lanes and the storage length and queue length for each movement and for the ramp as a whole. Worksheets are shown in Appendix R. The results show that for all off-ramps the off-ramp queues would be below the available storage capacity, with no backups occurring to the freeway mainline, except for one movement – the eastbound left movement at the I-10 EB off-ramp at Cook Street. As shown in Table 9.14, the available storage capacity of the overall ramp would also be exceeded.

Recommended Improvements - Freeways

Based on the analysis, there would be one off-ramp where queues would exceed storage capacity in the Pre-Event Hour for a Concert sellout - on the I-10 EB off-ramp at Cook Street. This could be eliminated by temporarily reconfiguring the off-ramp lanes at Cook Street from one left, one right/thru and one right, to two left and one thru/right. With this temporary TMP measure, the storage capacity of the off-ramp would not be exceeded, as shown in Table 9.15. Otherwise, no further improvements would be necessary for the Concert Sellout Pre-Event Hour conditions.

9.8.3 Freeway Analysis – Post-Event Hour – Concert Sellout

Freeway Segments

The freeway segment analysis is summarized in Table 9.16, which also shows existing conditions. LOS worksheets are shown in Appendix S. All freeway segments would operate acceptably at

LOS C or better, with most operating at LOS A or B. There would be no substantial changes or degradation in freeway segment operations under Concert Sellout Post-Event Hour conditions.

Freeway Merge/Diverge Areas

The freeway merge/diverge area analysis is summarized in Table 9.17 which also shows existing conditions. Worksheets are shown in Appendix S. All the areas would operate acceptably at LOS C or better, with most operating at LOS B. There would be no substantial changes or degradation in freeway merge/diverge areas under Concert Sellout Post-Event Hour conditions.

Freeway Off-Ramps

The freeway off-ramp analysis is summarized in Table 9.17, which shows for each off-ramp the number of lanes and the storage length and queue length for each movement and for the ramp as a whole. Worksheets are shown in Appendix S. The results show that for all off-ramps the off-ramp queues in the Post-Event hour for Concert Sellout conditions would be below the available storage capacity, with no backups occurring to the freeway mainline the mainline freeway.

Recommended Improvements - Freeways

Based on the analysis, there would be no substantial changes or degradation in freeway operations or freeway off-ramps where queues exceeded storage lengths, and therefore no improvements necessary for the Concert Sellout Post-Event Hour under EAPC conditions.

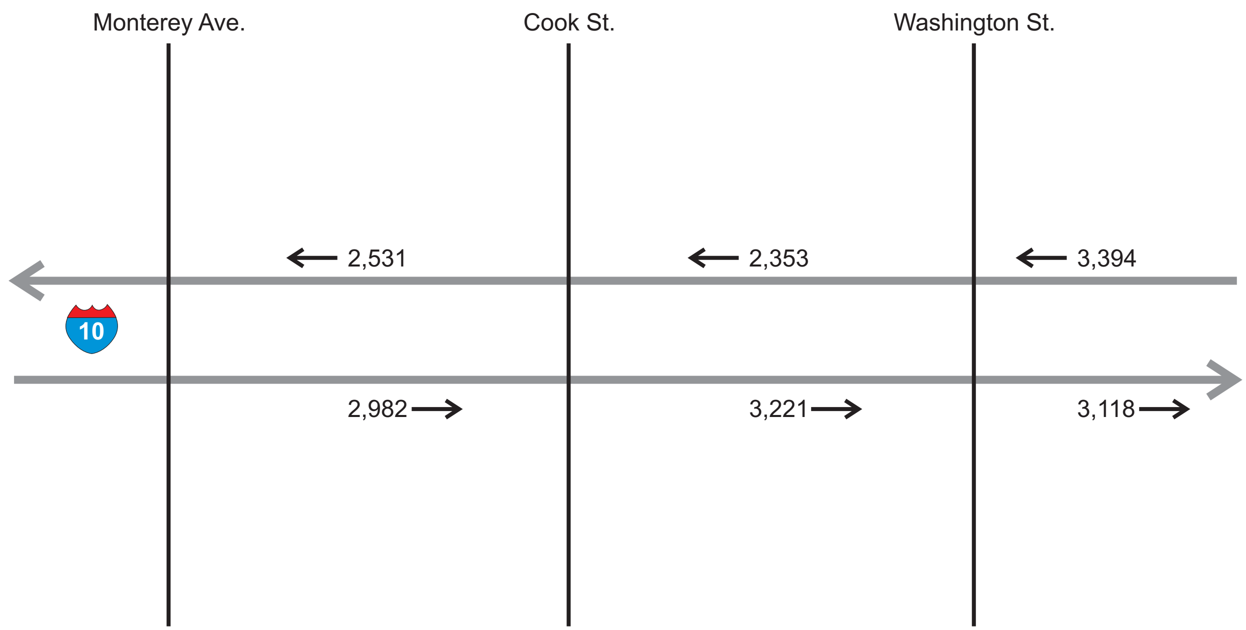
9.9 TMP Potential Measures and Outline

One temporary TMP measure is recommended for the Pre-Event Hour for Concert Sellouts.

- Temporary reconfiguration of the I-10 EB off-ramp lanes at Cook Street from one left, one right/thru and one right, to two left and one thru/right.
- Assign TCO.

This measure should be accompanied with the use of changeable message signs on the off-ramp and the side of the freeway in advance of the off-ramp, informing event traffic to use both off-ramp lanes from the freeway, and both left lanes approaching Cook Street.

See Chapter 8 for further details of the potential TMP measures.



Note: Volumes from PeMS, 2019, adjusted by +2% for 2020

Legend

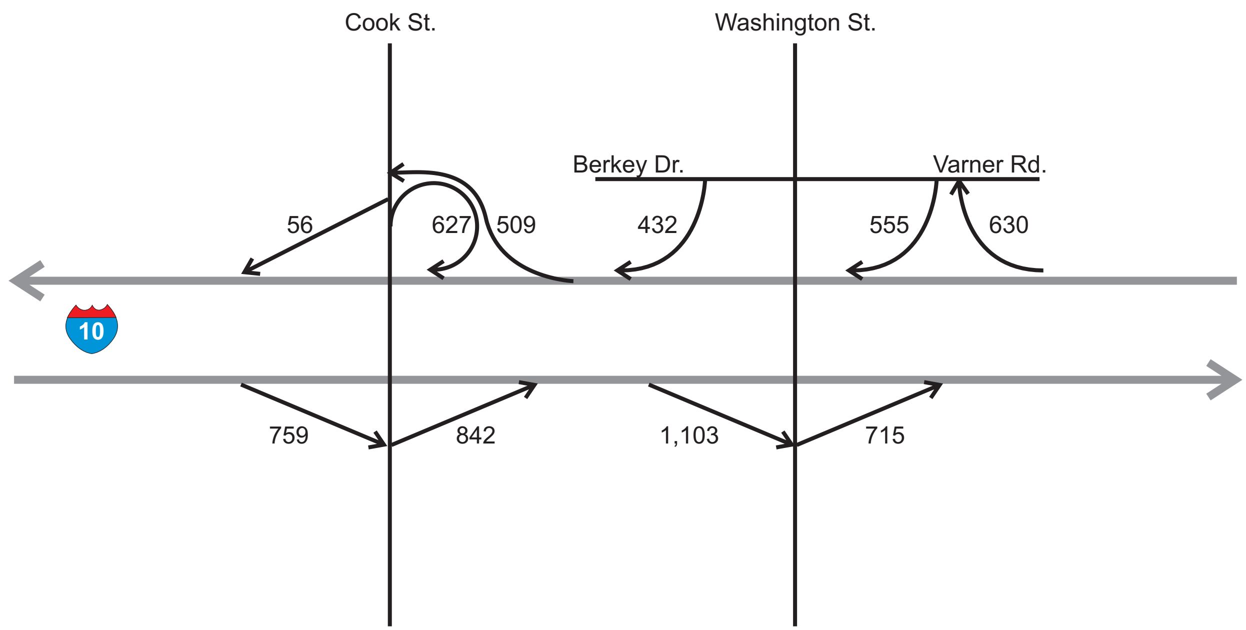
XXX Mainline Traffic Volume (PM Peak Hour)

12/22/20

Figure 9.1
Existing Freeway Mainline PM Peak Hour Traffic Volumes

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions



Legend

XXX Ramp Traffic Volume (PM Peak Hour)

12/22/20

Note: Volumes from intersection counts - COVID adjusted for 2020

Figure 9.2
Existing Freeway Ramp PM Peak Hour Traffic Volumes

Riverside County Arena

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Table 9.3 Freeway Segment Analysis - Existing (2020) Conditions - PM Peak Hour 12/29/20

Freeway	*Location*	*Direction* [1]	*Lanes*	*5:00-6:00 PM*		
				Volume	*Density* [2]	*LOS* [3]
I-10	1. West of Cook Street	WB	3	2,531	13.8	B
	2. West of Cook Street	EB	3	2,982	16.2	B
	3. East of Cook Street	WB	3	2,353	12.7	B
	4. East of Cook Street	EB	3	3,221	17.3	B
	5. East of Washington Street	WB	3	3,394	18.5	C
	6. East of Washington Street	EB	3	3,118	16.9	B

Notes:
1 EB = Eastbound; WB = Westbound
2 Density is measured by passenger cars per mile per lane (pc/mi/ln).
3 LOS = Level of Service

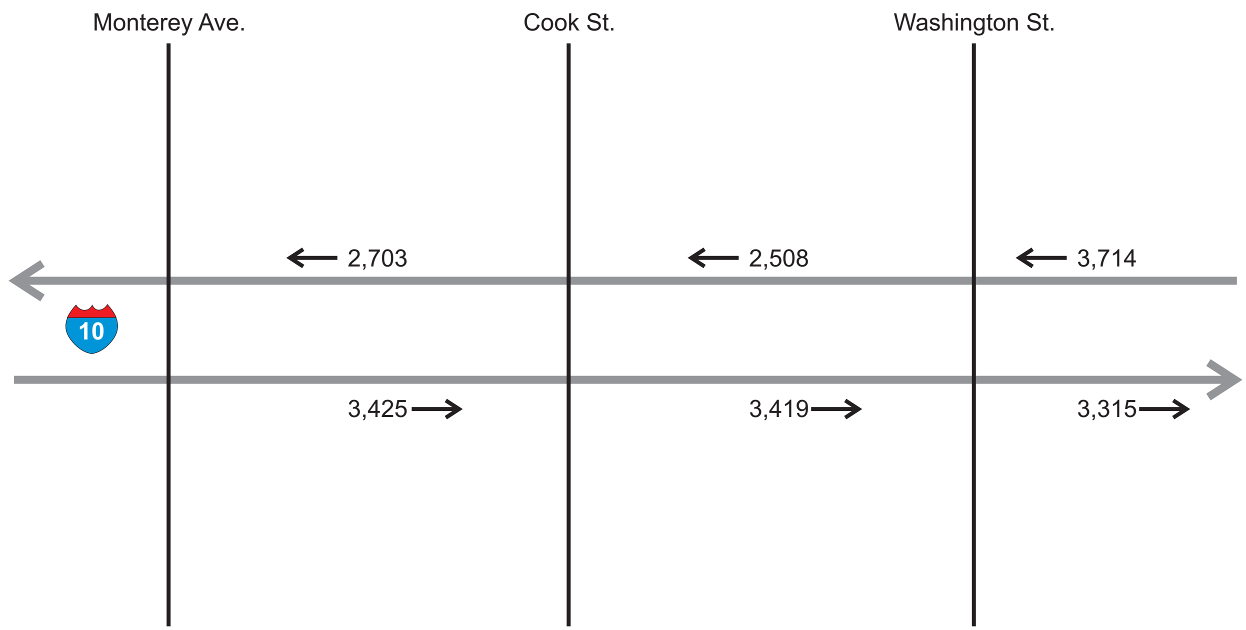
Table 9.4 Freeway Merge/Diverge Analysis - Existing (2020) Conditions - PM Peak Hour

Freeway	*Location*	*Direction* [1]	*Lanes on Freeway* [2]	*5:00-6:00 PM*	
				Density [3]	*LOS* [4]
I-10	1. On-Ramp at Cook Street (Merge)	WB	4	11.6	B
	2. Off-Ramp at Cook Street (Diverge)	EB	3	8.0	A
	3. Off-Ramp at Cook Street (Diverge)	WB	3	21.1	C
	4. On-Ramp at Cook Street (Merge)	EB	3	22.8	C
	5. Off-Ramp at Washington Street (Diverge)	WB	3	27.5	C
	6. On-Ramp at Washington Street (Merge)	EB	3	21.9	C

Notes:
1 EB = Eastbound; WB = Westbound
2 Number of lanes are in the specified direction and is based on existing conditions.
3 Density is measured by passenger cars per mile per lane (pc/mi/ln).
4 LOS = Level of Service

Table 9.5 Freeway Off-Ramp Queuing Analysis - Existing (2020) Conditions - PM Peak Hour

	Approach	*# of Lanes*	*Storage Length Per Lane (feet)*	*5:00-6:00 PM Volume*	*5:00-6:00 PM 95% Queue Length Per Lane*	*5:00-6:00 PM Exceed Storage Length*
1	I-10 WB Off-Ramp at Cook Street					
	Westbound Left/Through	1	952	451	274	No
	Westbound Right	1	952	58	27	No
	Ramp Total	2	1,904	509	301	No
2	I-10 EB Off-Ramp at Cook Street					
	Eastbound Left	1	1,240	56	43	No
	Eastbound Through/Right	1	534	1	374	No
	Eastbound Right	1	1,603	702	374	No
	Ramp Total	3	3,377	759	791	No
3	I-10 WB Off-ramp at Washington Street					
	Westbound Left	2	1,332	551	195	No
	Westbound Right	1	883	79	47	No
	Ramp Total	3	2,215	630	242	No



Note: Volumes from PeMS, 2019, adjusted by +2% for 2020

Legend

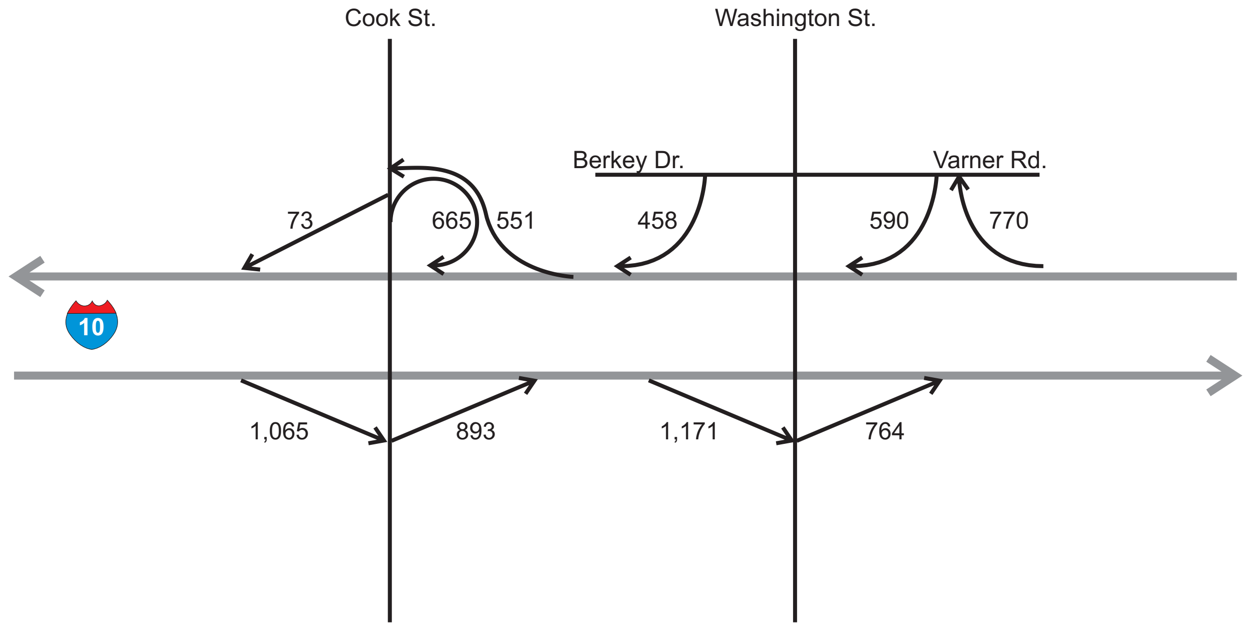
XXX Mainline Traffic Volume (PM Peak Hour)

12/22/20

Figure 9.3
EAP Freeway Mainline PM Peak Hour Traffic Volumes

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions



Legend	
XXX	Ramp Traffic Volume (PM Peak Hour)

12/22/20

Note: Volumes from intersection counts - COVID adjusted for 2020

Figure 9.4
EAP Freeway Ramp PM Peak Hour Traffic Volumes

Riverside County Arena

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Table 9.6 Freeway Segment Analysis - EAP (2023) Conditions - PM Peak Hour

12/29/20

Freeway	*Location*	*Direction*[1]	*Lanes*	*Existing 5:00-6:00 PM*			*EAP 5:00 - 6:00 PM*		
				Volume	*Density*[2]	*LOS*[3]	*Volume*	*Density*	*LOS*
I-10	1. West of Cook Street	WB	3	2,531	13.8	B	2,703	14.7	B
	2. West of Cook Street	EB	3	2,982	16.2	B	3,425	18.6	C
	3. East of Cook Street	WB	3	2,353	12.7	B	2,508	13.5	B
	4. East of Cook Street	EB	3	3,221	17.3	B	3,419	18.4	C
	5. East of Washington Street	WB	3	3,394	18.5	C	3,714	20.3	C
	6. East of Washington Street	EB	3	3,118	16.9	B	3,315	18.0	C

Notes:
1 EB = Eastbound; WB = Westbound
2 Density is measured by passenger cars per mile per lane (pc/mi/ln).
3 LOS = Level of Service

Table 9.7 Freeway Merge/Diverge Analysis - EAP (2023) Conditions - PM Peak Hour 12/29/20

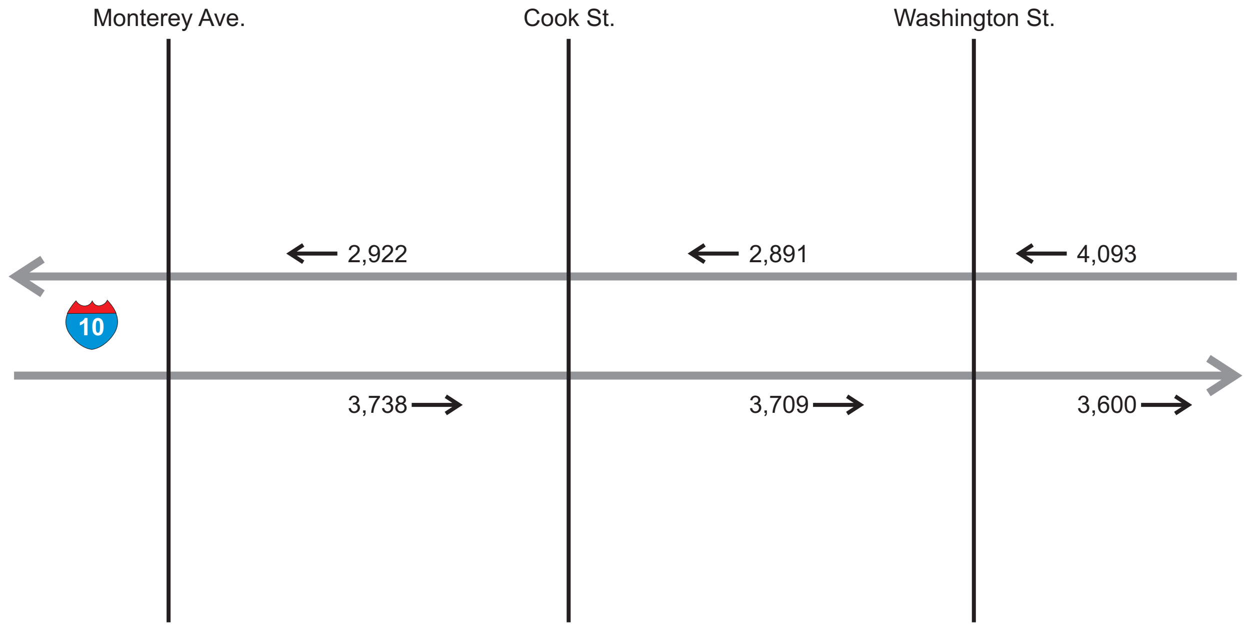
Freeway	*Location*	*Direction* [1]	*Lanes on Freeway* [2]	*Existing 5:00-6:00 PM*		*EAP 5:00-6:00 PM*	
				Density [3]	*LOS* [4]	*Density*	*LOS*
I-10	1. On-Ramp at Cook Street (Merge)	WB	4	11.6	B	12.3	B
	2. Off-Ramp at Cook Street (Diverge)	EB	3	8.0	A	11.6	B
	3. Off-Ramp at Cook Street (Diverge)	WB	3	21.1	C	22.1	C
	4. On-Ramp at Cook Street (Merge)	EB	3	22.8	C	24.0	C
	5. Off-Ramp at Washington Street (Diverge)	WB	3	27.5	C	29.5	D
	6. On-Ramp at Washington Street (Merge)	EB	3	21.9	C	23.1	C

Notes:
1 EB = Eastbound; WB = Westbound
2 Number of lanes are in the specified direction and is based on existing conditions.
3 Density is measured by passenger cars per mile per lane (pc/mi/ln).
4 LOS = Level of Service

Table 9.8 Freeway Off-Ramp Queuing Analysis - EAP (2023) Conditions - PM Peak Hour

12/29/20

	Approach	# of Lanes	Storage Length Per Lane (feet)	Existing 5:00-6:00 PM			EAP 5:00-6:00 PM		
				Volume	95% Queue Length Per Lane (feet)	Exceed Storage Length	Volume	95% Queue Length Per Lane (feet)	Exceed Storage Length
1	I-10 WB Off-Ramp at Cook Street								
	Westbound Left/Through	1	952	451	274	No	478	284	No
	Westbound Right	1	952	58	27	No	73	33	No
	Ramp Total	2	1,904	509	301	No	551	317	No
2	I-10 EB Off-Ramp at Cook Street								
	Eastbound Left	1	1,240	56	43	No	319	279	No
	Eastbound Through/Right	1	534	1	374	No	1	443	No
	Eastbound Right	1	1,603	702	374	No	745	443	No
	Ramp Total	3	3,377	759	791	No	1,065	1,165	No
3	I-10 WB Off-ramp at Washington Street								
	Westbound Left	2	1,332	551	195	No	686	226	No
	Westbound Right	1	883	79	47	No	84	46	No
	Ramp Total	3	2,215	630	242	No	770	272	No



Note: Volumes from PeMS, 2019, adjusted by +2% for 2020

Legend

XXX Mainline Traffic Volume (PM Peak Hour)

12/22/20

Figure 9.5
EAPC Freeway Mainline PM Peak Hour Traffic Volumes

Riverside County Arena

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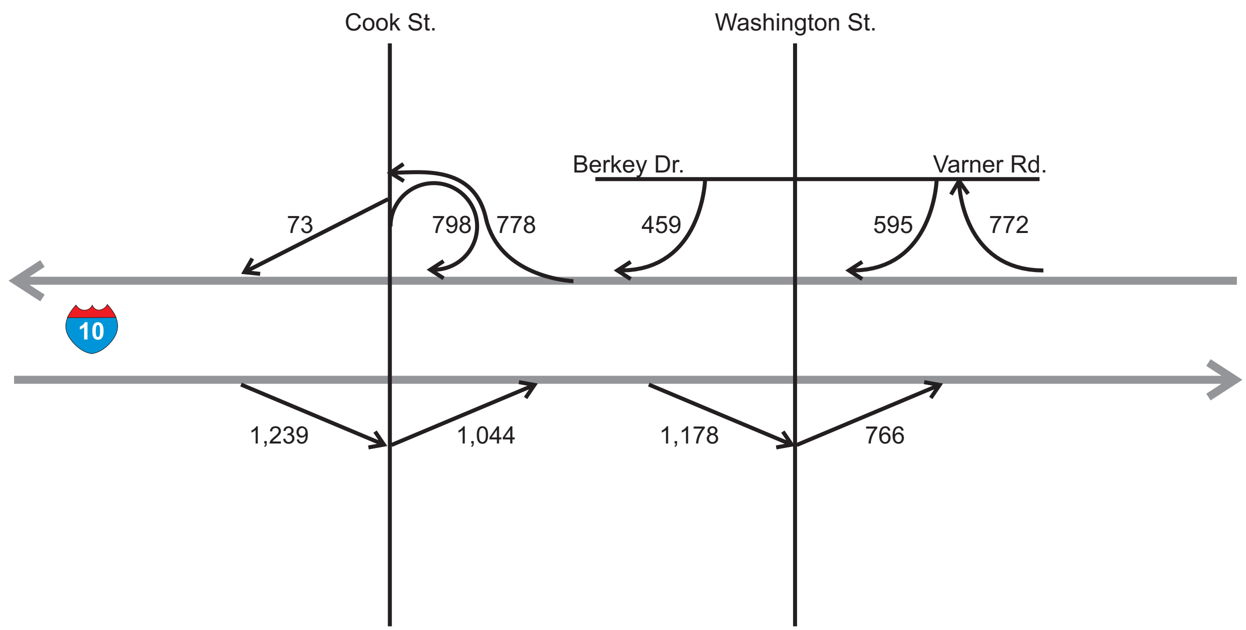

Legend

XXX Ramp Traffic Volume (PM Peak Hour)

12/22/20

Note: Volumes from intersection counts - COVID adjusted for 2020

Figure 9.6
EAPC Freeway Ramp PM Peak Hour Traffic Volumes

Riverside County Arena

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Table 9.9 Freeway Segment Analysis - EAPC (2023) Conditions - PM Peak Hour

12/29/20

Freeway	*Location*	*Direction* [1]	*Lanes*	*Existing 5:00-6:00 PM*			*EAPC 5:00 - 6:00 PM*		
				Volume	*Density* [2]	*LOS* [3]	*Volume*	*Density*	*LOS*
I-10	1. West of Cook Street	WB	3	2,531	13.8	B	2,992	16.3	B
	2. West of Cook Street	EB	3	2,982	16.2	B	3,738	20.5	C
	3. East of Cook Street	WB	3	2,353	12.7	B	2,891	15.6	B
	4. East of Cook Street	EB	3	3,221	17.3	B	3,709	20.1	C
	5. East of Washington Street	WB	3	3,394	18.5	C	4,093	22.7	C
	6. East of Washington Street	EB	3	3,118	16.9	B	3,600	19.7	C

Notes:
1 EB = Eastbound; WB = Westbound
2 Density is measured by passenger cars per mile per lane (pc/mi/ln).
3 LOS = Level of Service

Table 9.10 Freeway Merge/Diverge Analysis - EAPC (2023) Conditions - PM Peak Hour 12/29/20

Freeway	*Location*	*Direction* [1]	*Lanes on Freeway* [2]	*Existing 5:00-6:00 PM*		*EAPC 5:00-6:00 PM*	
				Density [3]	*LOS* [4]	*Density*	*LOS*
I-10	1. On-Ramp at Cook Street (Merge)	WB	4	11.6	B	13.3	B
	2. Off-Ramp at Cook Street (Diverge)	EB	3	8.0	A	16.5	B
	3. Off-Ramp at Cook Street (Diverge)	WB	3	21.1	C	24.9	C
	4. On-Ramp at Cook Street (Merge)	EB	3	22.8	C	25.9	C
	5. Off-Ramp at Washington Street (Diverge)	WB	3	27.5	C	31.4	D
	6. On-Ramp at Washington Street (Merge)	EB	3	21.9	C	24.6	C

Notes:

1 EB = Eastbound; WB = Westbound

2 Number of lanes are in the specified direction and is based on existing conditions.

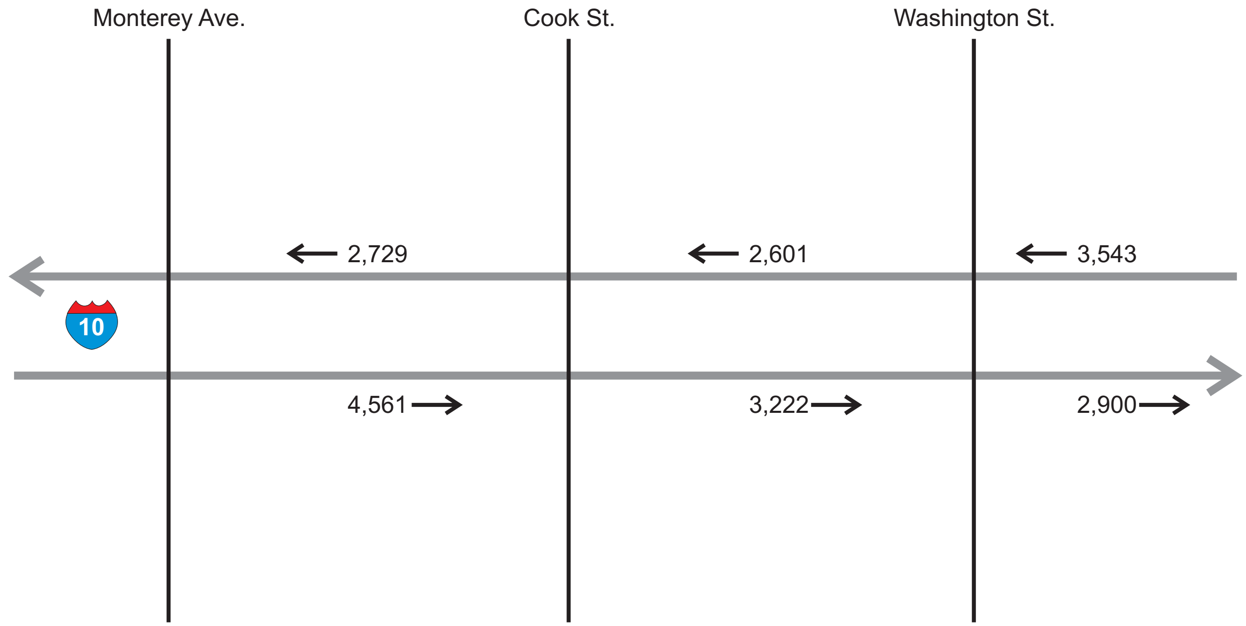
3 Density is measured by passenger cars per mile per lane (pc/mi/ln).

4 LOS = Level of Service

Table 9.11 Freeway Off-Ramp Queuing Analysis - EAPC (2023) Conditions- PM Peak Hour

12/29/20

	Approach	# of Lanes	Storage Length Per Lane (feet)	Existing 5:00-6:00 PM Volume	Existing 5:00-6:00 PM 95% Queue Length Per Lane (feet)	Existing 5:00-6:00 PM Exceed Storage Length	EAPC 5:00-6:00 PM Volume	EAPC 5:00-6:00 PM 95% Queue Length Per Lane (feet)	EAPC 5:00-6:00 PM Exceed Storage Length
1	I-10 WB Off-Ramp at Cook Street								
	Westbound Left/Through	1	952	451	274	No	630	332	No
	Westbound Right	1	952	58	27	No	148	55	No
	Ramp Total	2	1,904	509	301	No	778	387	No
2	I-10 EB Off-Ramp at Cook Street								
	Eastbound Left	1	1,240	56	43	No	319	279	No
	Eastbound Through/Right	1	534	1	374	No	1	841	Yes
	Eastbound Right	1	1,603	702	374	No	919	842	No
	Ramp Total	3	3,377	759	791	No	1,239	1,962	No
3	I-10 WB Off-ramp at Washington Street								
	Westbound Left	2	1,332	551	195	No	688	226	No
	Westbound Right	1	883	79	47	No	84	46	No
	Ramp Total	3	2,215	630	242	No	772	272	No



Legend

XXX Mainline Traffic Volume (Pre-Event)

12/30/20

Figure 9.7
Freeway Mainline Pre-Event Traffic Volumes - Concert Sell-out

Riverside County Arena

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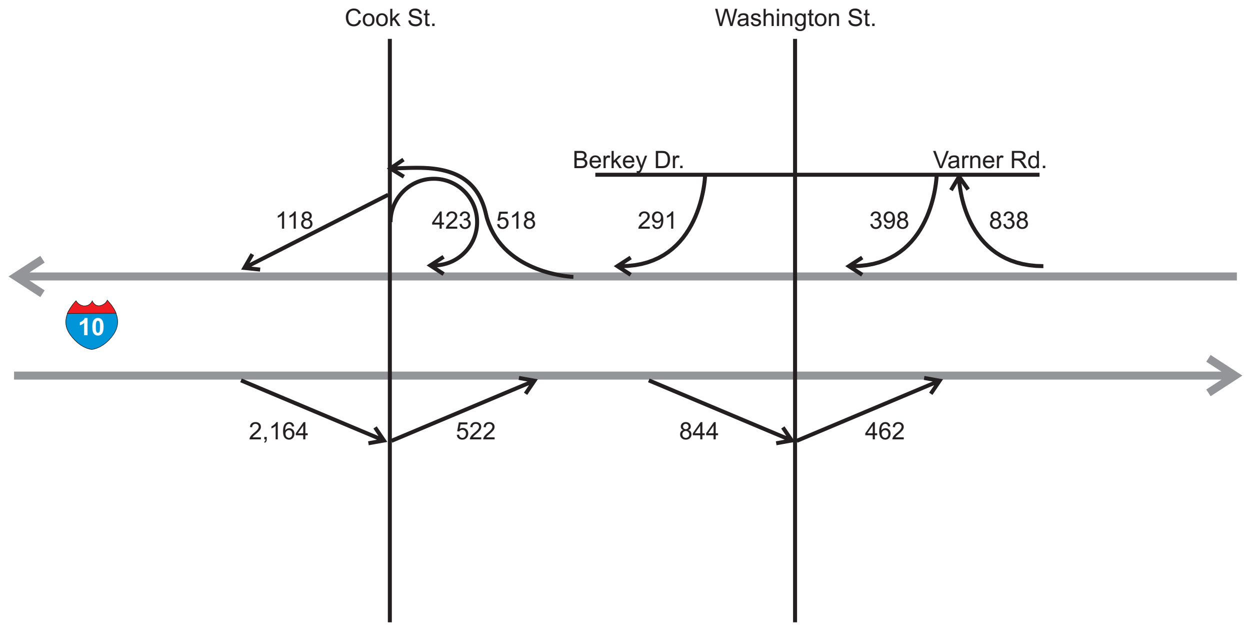

Legend

XXX Ramp Traffic Volume (Pre-Event)

12/30/20

Figure 9.8
Freeway Ramp Pre-Event Hour Traffic Volumes - Concert Sellout

Riverside County Arena

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Table 9.12 Freeway Segment Analysis - EAPC (2023) Conditions - Concert Sellout - Pre-Event Hour

Freeway	*Location*	*Direction* [1]	*Lanes*	*Existing 6:00-7:00 PM*			*EAPC 6:00 - 7:00 PM*		
				Volume	*Density* [2]	*LOS* [3]	*Volume*	*Density*	*LOS*
I-10	1. West of Cook Street	WB	3	2,246	12.2	B	2,729	14.8	B
	2. West of Cook Street	EB	3	2,610	14.2	B	4,561	26.0	D
	3. East of Cook Street	WB	3	2,088	11.2	B	2,601	14.0	B
	4. East of Cook Street	EB	3	2,818	15.2	B	3,222	17.3	B
	5. East of Washington Street	WB	3	2,520	13.7	B	3,543	19.3	C
	6. East of Washington Street	EB	3	2,494	13.6	B	2,900	15.8	B

Notes:
1 EB = Eastbound; WB = Westbound
2 Density is measured by passenger cars per mile per lane (pc/mi/ln).
3 LOS = Level of Service

Table 9.13 Freeway Merge/Diverge Analysis - EAPC (2023) Conditions - Concert Sellout - Pre-Event Hour

Freeway	*Location*	*Direction* [1]	*Lanes on Freeway* [2]	*Existing 6:00-7:00 PM*		*EAPC 6:00-7:00 PM*	
				Density [3]	*LOS* [4]	*Density*	*LOS*
I-10	1. On-Ramp at Cook Street (Merge)	WB	4	10.5	B	12.6	B
	2. Off-Ramp at Cook Street (Diverge)	EB	3	5.4	A	22.6	C
	3. Off-Ramp at Cook Street (Diverge)	WB	3	19.0	B	21.3	C
	4. On-Ramp at Cook Street (Merge)	EB	3	19.4	B	21.9	C
	5. Off-Ramp at Washington Street (Diverge)	WB	3	21.9	C	27.4	C
	6. On-Ramp at Washington Street (Merge)	EB	3	17.8	B	20.1	C

Notes:
1 EB = Eastbound; WB = Westbound
2 Number of lanes are in the specified direction and is based on existing conditions.
3 Density is measured by passenger cars per mile per lane (pc/mi/ln).
4 LOS = Level of Service

Table 9.14 Freeway Off-Ramp Queuing Analysis - EAPC (2023) Conditions - Concert Sellout - Pre-Event Hour

	Approach	*# of Lanes*	*Storage Length Per Lane (feet)*	*Existing 6:00-7:00 PM*			*EAPC 6:00-7:00 PM*		
				Volume	*95% Queue Length Per Lane (feet)*	*Exceed Storage Length*	*Volume*	*95% Queue Length Per Lane (feet)*	*Exceed Storage Length*
1	I-10 WB Off-Ramp at Cook Street								
	Westbound Left/Through	1	952	220	174	No	357	529	No
	Westbound Right	1	952	52	34	No	161	114	No
	Ramp Total	2	1,904	272	208	No	518	643	No
2	I-10 EB Off-Ramp at Cook Street								
	Eastbound Left	1	1,240	31	18	No	1,563	5,057	Yes
	Eastbound Through/Right	1	534	0	163	No	0	106	No
	Eastbound Right	1	1,603	429	163	No	601	106	No
	Ramp Total	3	3,377	460	344	No	2,164	5,269	Yes
3	I-10 WB Off-ramp at Washington Street								
	Westbound Left	2	1,332	269	115	No	774	276	No
	Westbound Right	1	883	60	49	No	64	38	No
	Ramp Total	3	2,215	329	164	No	838	314	No

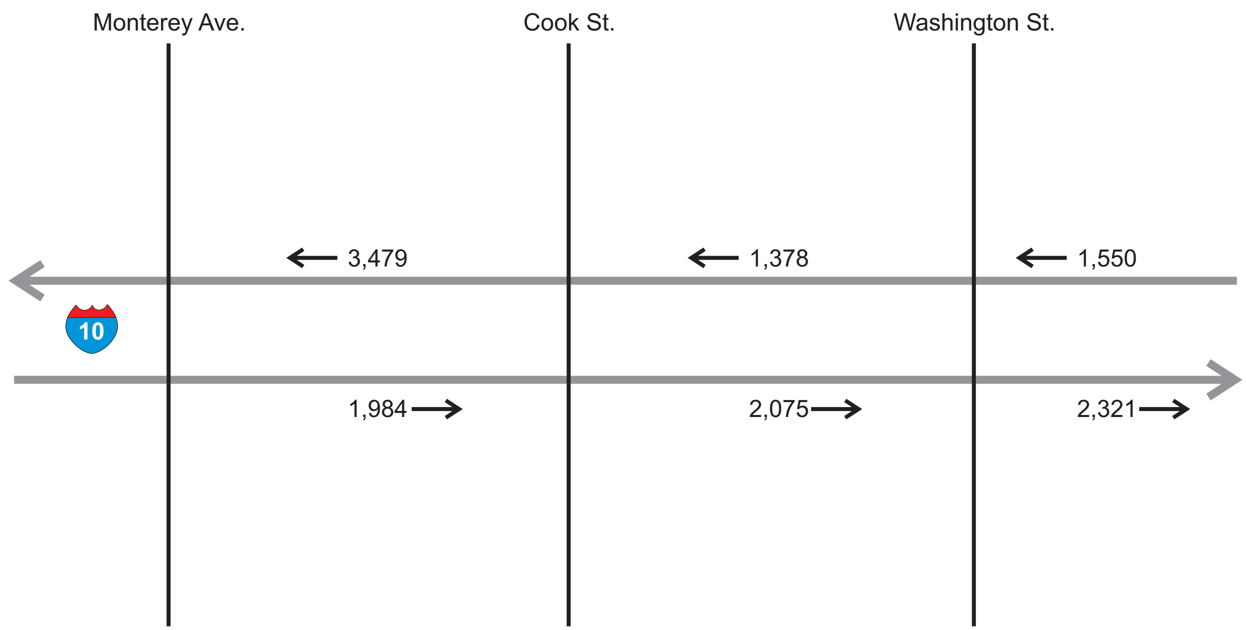
Table 9.15 Freeway Off-Ramp Queuing Analysis - EAPC (2023) Conditions - Concert Sellout Pre-Event Hour with TMP Measure

	Approach	# of Lanes	Storage Length Per Lane (feet)	Existing 6:00-7:00 PM			EAPC 6:00-7:00 PM		
				Volume	95% Queue Length Per Lane (feet)	Exceed Storage Length	Volume	95% Queue Length Per Lane (feet)	Exceed Storage Length
1	I-10 WB Off-Ramp at Cook Street								
	Westbound Left/Through	1	952	220	174	No	357	529	No
	Westbound Right	1	952	52	34	No	161	114	No
	Ramp Total	2	1,904	272	208	No	518	643	No
2	I-10 EB Off-Ramp at Cook Street [1,2]								
	Eastbound Left	2	2,389	31	18	No	1,563	1,179	No
	Eastbound Through/Right	-	-	0	163	No	-	-	-
	Eastbound Right	1	988	429	163	No	601	715	No
	Ramp Total	3	3,377	460	344	No	2,164	1,894	No
3	I-10 WB Off-ramp at Washington Street								
	Westbound Left	2	1,332	269	115	No	774	276	No
	Westbound Right	1	883	60	49	No	64	38	No
	Ramp Total	3	2,215	329	164	No	838	314	No

Notes:

1 The lane configuration in the Existing Conditons is 1 LT, 1 Th/RT and 1 RT.

2 The storage length per lane (feet) in the Existing Conditons are calculated 1,240 for LT, 534 for Th/RT, and 1,603 for RT.



Legend

XXX Mainline Traffic Volume (Post Event)

12/30/20

Figure 9.9
Freeway Mainline Post-Event Hour Traffic Volumes - Concert Sellout

Riverside County Arena

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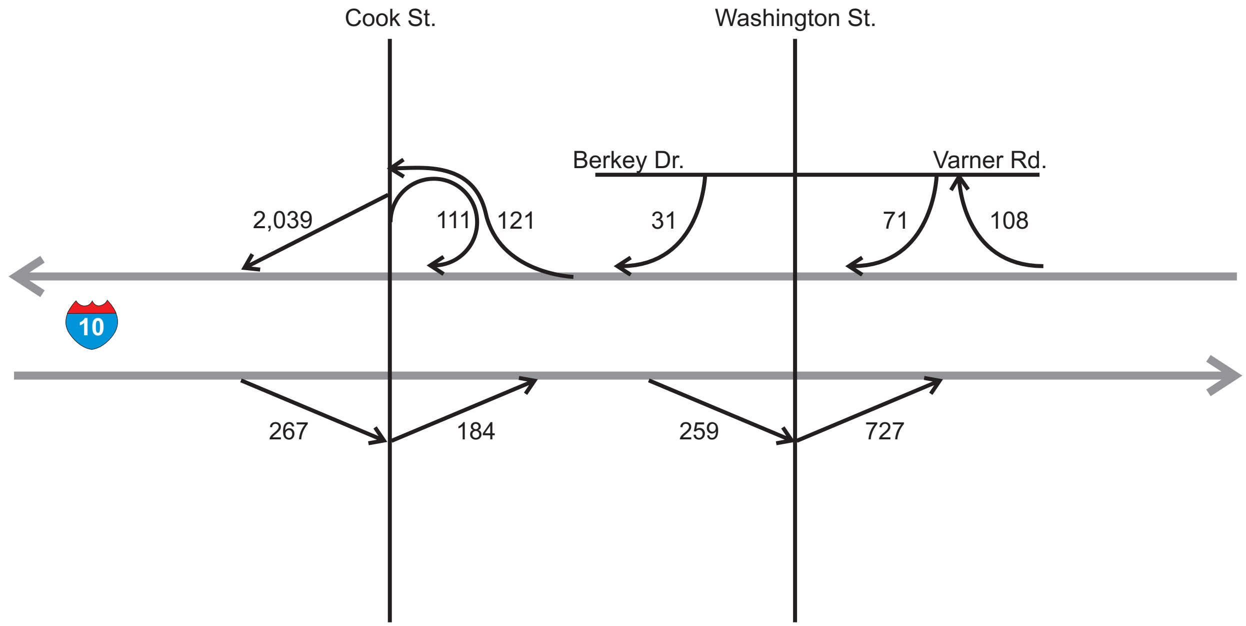

Legend

XXX Ramp Traffic Volume (Post Event)

12/30/20

Figure 9.10
Freeway Ramp Post-Event Hour Traffic Volumes - Concert Sellout

Riverside County Arena

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Table 9.16 Freeway Segment Analysis - EAPC (2023) Conditions - Concert Sellout - Post-Event Hour

Freeway	*Location*	*Direction*[1]	*Lanes*	*Existing 11:00-12:00 PM*			*EAPC 11:00 - 12:00 PM*		
				Volume	*Density*[2]	*LOS*[3]	*Volume*	*Density*	*LOS*
I-10	1. West of Cook Street	WB	3	1,267	6.9	A	3,479	19.0	C
	2. West of Cook Street	EB	3	1,641	8.9	A	1,984	10.8	A
	3. East of Cook Street	WB	3	1,178	6.3	A	1,378	7.4	A
	4. East of Cook Street	EB	3	1,773	9.5	A	2,075	11.2	B
	5. East of Washington Street	WB	3	1,309	7.1	A	1,550	8.4	A
	6. East of Washington Street	EB	3	1,399	7.6	A	2,321	12.6	B

Notes:
1 EB = Eastbound; WB = Westbound
2 Density is measured by passenger cars per mile per lane (pc/mi/ln).
3 LOS = Level of Service

Table 9.17 Freeway Merge/Diverge Analysis - EAPC (2023) Conditions - Concert Sellout - Post-Event Hour 12/29/20

Freeway	Location	Direction [1]	Lanes on Freeway [2]	Existing 11:00-12:00 PM		EAPC 11:00-12:00 PM	
				Density [3]	LOS [4]	Density	LOS
I-10	1. On-Ramp at Cook Street (Merge)	WB	4	6.9	A	24.1	C
	2. Off-Ramp at Cook Street (Diverge)	EB	3	2.4	A	5.0	A
	3. Off-Ramp at Cook Street (Diverge)	WB	3	11.3	B	12.8	B
	4. On-Ramp at Cook Street (Merge)	EB	3	13.0	B	14.9	B
	5. Off-Ramp at Washington Street (Diverge)	WB	3	12.3	B	14.0	B
	6. On-Ramp at Washington Street (Merge)	EB	3	11.1	B	17.8	B

Notes:
1 EB = Eastbound; WB = Westbound
2 Number of lanes are in the specified direction and is based on existing conditions.
3 Density is measured by passenger cars per mile per lane (pc/mi/ln).
4 LOS = Level of Service

12/29/2020

Table 9.18 Freeway Off-Ramp Queuing Analysis - EAPC (2023) Conditions - Concert Sellout - Post-Event Hour

	Approach	*# of Lanes*	*Storage Length Per Lane (feet)*	*Existing 11:00-12:00 PM*			*EAPC 11:00-12:00 PM*		
				Volume	*95% Queue Length Per Lane (feet)*	*Exceed Storage Length*	*Volume*	*95% Queue Length Per Lane (feet)*	*Exceed Storage Length*
1	I-10 WB Off-Ramp at Cook Street								
	Westbound Left/Through	1	952	47	43	No	99	92	No
	Westbound Right	1	952	1	1	No	22	17	No
	Ramp Total	2	1,904	48	44	No	121	109	No
2	I-10 EB Off-Ramp at Cook Street								
	Eastbound Left	1	1,240	3	2	No	112	91	No
	Eastbound Through/Right	1	534	3	36	No	3	60	No
	Eastbound Right	1	1,603	87	36	No	152	60	No
	Ramp Total	3	3,377	93	74	No	267	211	No
3	I-10 WB Off-ramp at Washington Street								
	Westbound Left	2	1,332	56	26	No	95	45	No
	Westbound Right	1	883	12	11	No	13	12	No
	Ramp Total	3	2,215	68	37	No	108	57	No

Riverside County Arena Project

Transportation Analysis Report

Appendices

PPT200021

March, 2021

Prepared by

The **Mobility** Group

APPENDICES

Appendix A: Traffic Counts

Appendix B: Existing Conditions Analysis Worksheets - Intersections

Appendix C: Project Trip Generation

Appendix D: Project Trip Distribution

Appendix E: Updated Specific Plan Trip Totals

Appendix F: PM Peak Hour EAP Conditions Analysis Worksheets - Intersections

Appendix G: PM Peak Hour EAP Improvements Analysis - Intersections

Appendix H: PM Peak Hour EAPC Conditions Analysis Worksheets - Intersections

Appendix I: PM Peak Hour EAPC Improvements Analysis - Intersections

Appendix J: PM Peak Hour Driveway Analysis Worksheets

Appendix K: Pre-Event Hour Concert Sellout EAPC Analysis –Intersections

Appendix L: Post-Event Hour Concert Sellout EAPC Analysis –Intersections

Appendix M: Pre-Event Hour Concert Sellout EAPC Analysis –Driveways

Appendix N: Post-Event Hour Concert Sellout EAPC Analysis –Driveways

Appendix O: Existing Conditions Analysis Worksheets - Freeways

Appendix P: PM Peak Hour EAP Conditions Analysis Worksheets - Freeways

Appendix Q: PM Peak Hour EAPC Conditions Analysis Worksheets - Freeways

Appendix R: Pre-Event Hour Concert Sellout EAPC Analysis –Freeways

Appendix S: Pre-Event Hour Concert Sellout EAPC Analysis –Freeways

Appendix T: Scoping Agreement

Appendix A

Traffic Counts

Table 1 RCA - Base Traffic Counts - Weekday (5:00-6:00 PM) 3/1/2021

#	Intersection Location	Traffic Counts[1,2,3]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2017	21	357	10	388	438	181	144	763	204	403	70	677	26	68	195	289	2,117
2	Monterrey Avenue & I-10 EB Ramps	2017	155	771	0	926	0	0	0	0	0	1,398	612	2,010	44	2	539	585	3,521
3	Varner Road & Jack Ivy Drive	2017	18	115	0	133	22	0	22	44	0	200	25	225	0	0	0	0	402
4	Cook Street & Varner Road	2017	7	63	3	73	98	107	2	207	118	42	99	259	2	84	50	136	675
5	Cook Street & I-10 WB Ramps	2019	0	224	49	273	439	3	57	499	3	280	615	898	0	0	0	0	1,670
6	Cook Street & I-10 EB Ramps	2019	50	619	0	669	0	0	0	0	0	843	774	1,617	55	1	688	744	3,030
7	Cook Street & Gerald Ford Drive	2019	166	694	208	1,068	48	152	203	403	164	963	29	1,156	414	217	110	741	3,368
8	Cook Street & Frank Sinatra Drive	2019	68	618	197	883	41	152	82	275	121	787	81	989	248	260	189	697	2,844
9	Cook Street & Country Club Drive	2019	200	605	188	993	130	375	157	662	214	772	204	1,190	136	592	275	1,003	3,848
10	Varner Road & Classic Club Boulevard	2020	3	175	0	178	3	0	3	6	0	400	4	404	0	0	0	0	588
11	Varner Road & Avenue 38	2020	12	156	0	168	0	0	24	24	0	357	1	358	0	0	0	0	550
12	Varner Road & Berkey Drive	2020	61	29	17	107	273	263	29	565	0	0	0	0	12	198	16	226	898
13	Washington Street & Avenue 38	2020	0	119	4	123	0	0	0	0	18	260	0	278	8	0	5	13	414
14	Washington Street & Varner Road	2017	230	556	140	926	522	182	211	915	343	717	700	1,760	54	120	129	303	3,904
15	Washington Street & I-10 EB Ramps	2020	176	820	0	996	0	0	0	0	0	1,165	345	1,510	184	5	622	811	3,317
16	Washington Street & Country Club Drive	2020	214	964	339	1,517	47	157	125	329	195	960	28	1,183	423	451	122	996	4,025
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	128	525	0	653	405	0	58	463	0	644	280	924	2,040

Notes:

1. 2017 Traffic Counts are from Ivey Palms Traffic Impact Analysis, Urban Crossroads, April 2018.
2. 2019 Traffic Counts are from Desert Wave Traffic Impact Analysis, Urban Crossroads, March 2019.
3. 2020 Traffic Counts conducted on Wednesday, October 28 2020.

Table 2 RCA - 2020 Adjusted Traffic Counts - Weekday (5:00-6:00 PM) 12/4/2020

#	Intersection Location	Traffic Counts[1,2,3]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2017	22	379	11	412	465	192	153	810	216	428	74	718	28	72	207	307	2,247
2	Monterrey Avenue & I-10 EB Ramps	2017	164	818	0	982	0	0	0	0	0	1,484	649	2,133	47	2	572	621	3,736
3	Varner Road & Jack Ivy Drive	2017	19	122	0	141	23	0	23	46	0	212	27	239	0	0	0	0	426
4	Cook Street & Varner Road	2017	7	67	3	77	104	114	2	220	125	45	105	275	2	89	53	144	716
5	Cook Street & I-10 WB Ramps	2019	0	228	50	278	448	3	58	509	3	286	627	916	0	0	0	0	1,703
6	Cook Street & I-10 EB Ramps	2019	51	631	0	682	0	0	0	0	0	860	789	1,649	56	1	702	759	3,090
7	Cook Street & Gerald Ford Drive	2019	169	708	212	1,089	49	155	207	411	167	982	30	1,179	422	221	112	755	3,434
8	Cook Street & Frank Sinatra Drive	2019	69	630	201	900	42	155	84	281	123	803	83	1,009	253	265	193	711	2,901
9	Cook Street & Country Club Drive	2019	204	617	192	1,013	133	383	160	676	218	787	208	1,213	139	604	281	1,024	3,926
10	Varner Road & Classic Club Boulevard	2020	4	238	0	242	4	0	4	8	0	544	5	549	0	0	0	0	799
11	Varner Road & Avenue 38	2020	16	212	0	228	0	0	33	33	0	486	1	487	0	0	0	0	748
12	Varner Road & Berkey Drive	2020	83	39	23	145	371	358	39	768	0	0	0	0	16	269	22	307	1,220
13	Washington Street & Avenue 38	2020	0	162	5	167	0	0	0	0	24	354	0	378	11	0	7	18	563
14	Washington Street & Varner Road	2017	244	590	149	983	554	193	224	971	364	761	743	1,868	57	127	137	321	4,143
15	Washington Street & I-10 EB Ramps	2020	239	1,115	0	1,354	0	0	0	0	0	1,584	469	2,053	250	7	846	1,103	4,510
16	Washington Street & Country Club Drive	2020	285	1,282	451	2,018	63	209	166	438	259	1,277	37	1,573	563	600	162	1,325	5,354
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	174	714	0	888	551	0	79	630	0	876	381	1,257	2,775

Notes:

1 . 2017 Traffic Counts increased by 2% ambient growth to 2020.

1 . 2019 Traffic Counts from Desert Wave Study increased by 2% ambient growth to 2020.

2. The Current 2020 Counts factored by 1.36 to account for Covid.

Table 1 RCA - Based Traffic Counts - Weekday (6:00-7:00 PM)

3/12/2021

#	Intersection Location	Traffic Counts[1,2]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2020	16	280	8	304	237	111	130	478	140	299	25	464	29	25	86	140	1,386
2	Monterrey Avenue & I-10 EB Ramps	2020	99	472	0	571	0	0	0	0	0	857	385	1,242	24	2	307	333	2,146
3	Varner Road & Jack Ivy Drive	2020	7	0	17	24	0	109	10	119	0	0	0	0	9	52	0	61	204
4	Cook Street & Varner Road	2020	10	22	4	36	44	57	3	104	66	15	39	120	3	37	25	65	325
5	Cook Street & I-10 WB Ramps	2019	0	130	31	161	215	1	51	267	2	134	291	427	0	0	0	0	855
6	Cook Street & I-10 EB Ramps	2019	39	301	0	340	0	0	0	0	0	383	335	718	30	0	421	451	1,509
7	Cook Street & Gerald Ford Drive	2019	113	387	115	615	34	87	96	217	113	403	19	535	209	115	64	388	1,755
8	Cook Street & Frank Sinatra Drive	2019	53	389	143	585	28	76	37	141	72	399	34	505	95	123	81	299	1,530
9	Cook Street & Country Club Drive	2019	119	386	104	609	78	281	110	469	123	381	114	618	76	357	190	623	2,319
10	Varner Road & Classic Club Boulevard	2020	1	86	0	87	5	0	0	5	0	107	0	107	0	0	0	0	199
11	Varner Road & Avenue 38	2020	11	74	0	85	0	0	4	4	0	100	0	100	0	0	0	0	189
12	Varner Road & Berkey Drive	2020	41	18	7	66	174	90	29	293	0	0	0	0	4	93	19	116	475
13	Washington Street & Avenue 38	2020	0	106	2	108	0	0	0	0	2	149	0	151	6	0	6	12	271
14	Washington Street & Varner Road	2020	118	215	38	371	349	87	90	526	185	271	428	884	16	65	71	152	1,933
15	Washington Street & I-10 EB Ramps	2020	79	473	0	552	0	0	0	0	0	705	219	924	133	2	444	579	2,055
16	Washington Street & Country Club Drive	2020	151	677	208	1,036	32	108	83	223	171	617	39	827	308	236	83	627	2,713
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	87	339	0	426	198	0	44	242	0	431	186	617	1,285

Notes:

1. 2019 Traffic Counts are from Desert Wave Traffic Impact Analysis, Urban Crossroads, March 2019.
2. 2020 Traffic Counts conducted on Wednesday, October 28 2020.

Table 2 RCA - 2020 Adjusted Traffic Counts - Weekday (6:00-7:00 PM) 12/7/2020

#	Intersection Location	Traffic Counts[1,2]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2020	22	381	11	414	322	151	177	650	190	407	34	631	39	34	117	190	1,885
2	Monterrey Avenue & I-10 EB Ramps	2020	135	642	0	777	0	0	0	0	0	1,166	524	1,690	33	3	418	454	2,921
3	Varner Road & Jack Ivy Drive	2020	10	0	23	33	0	148	14	162	0	0	0	0	12	71	0	83	278
4	Cook Street & Varner Road	2020	14	30	5	49	60	78	4	142	90	20	53	163	4	50	34	88	442
5	Cook Street & I-10 WB Ramps	2019	0	133	32	165	219	1	52	272	2	137	297	436	0	0	0	0	873
6	Cook Street & I-10 EB Ramps	2019	40	307	0	347	0	0	0	0	0	391	342	733	31	0	429	460	1,540
7	Cook Street & Gerald Ford Drive	2019	115	395	117	627	35	89	98	222	115	411	19	545	213	117	65	395	1,789
8	Cook Street & Frank Sinatra Drive	2019	54	397	146	597	29	78	38	145	73	407	35	515	97	125	83	305	1,562
9	Cook Street & Country Club Drive	2019	121	394	106	621	80	287	112	479	125	389	116	630	78	364	194	636	2,366
10	Varner Road & Classic Club Boulevard	2020	1	117	0	118	7	0	0	7	0	146	0	146	0	0	0	0	271
11	Varner Road & Avenue 38	2020	15	101	0	116	0	0	5	5	0	136	0	136	0	0	0	0	257
12	Varner Road & Berkey Drive	2020	56	24	10	90	237	122	39	398	0	0	0	0	5	126	26	157	645
13	Washington Street & Avenue 38	2020	0	144	3	147	0	0	0	0	3	203	0	206	8	0	8	16	369
14	Washington Street & Varner Road	2020	157	286	51	494	464	116	120	700	246	360	569	1,175	21	86	94	201	2,570
15	Washington Street & I-10 EB Ramps	2020	107	643	0	750	0	0	0	0	0	959	298	1,257	181	3	604	788	2,795
16	Washington Street & Country Club Drive	2020	201	900	277	1,378	43	144	110	297	227	821	52	1,100	410	314	110	834	3,609
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	118	461	0	579	269	0	60	329	0	586	253	839	1,747

Notes:

1 . 2019 Traffic Counts from Desert Wave Study increased by 2% ambient growth to 2020.

2. The Current 2020 Counts factored by 1.36 to account for Covid.

Table 1 RCA - Based Traffic Counts - Weekday (11:00 PM -12:00 AM) 12/2/2020

#	Intersection Location	Traffic Counts[1]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2020	2	26	5	33	17	26	21	64	42	29	2	73	8	9	55	72	242
2	Monterrey Avenue & I-10 EB Ramps	2020	48	47	0	95	0	0	0	0	0	111	35	146	11	1	40	52	293
3	Varner Road & Jack Ivy Drive	2020	0	0	0	0	0	10	0	10	0	0	0	0	1	8	0	9	19
4	Cook Street & Varner Road	2020	0	6	1	7	3	4	0	7	5	2	4	11	0	8	3	11	36
5	Cook Street & I-10 WB Ramps	2020	0	10	2	12	32	2	1	35	0	11	47	58	0	0	0	0	105
6	Cook Street & I-10 EB Ramps	2020	4	38	0	42	0	0	0	0	0	54	40	94	2	2	64	68	204
7	Cook Street & Gerald Ford Drive	2020	28	72	12	112	4	4	4	12	7	59	3	69	21	13	8	42	235
8	Cook Street & Frank Sinatra Drive	2020	1	75	8	84	3	7	1	11	12	55	1	68	12	13	7	32	195
9	Cook Street & Country Club Drive	2020	8	61	11	80	7	20	6	33	11	49	4	64	9	34	16	59	236
10	Varner Road & Classic Club Boulevard	2020	0	12	0	12	0	0	0	0	0	8	0	8	0	0	0	0	20
11	Varner Road & Avenue 38	2020	1	6	0	7	1	0	0	1	0	8	0	8	0	0	0	0	16
12	Varner Road & Berkey Drive	2020	3	1	1	5	20	9	7	36	0	0	0	0	1	7	1	9	50
13	Washington Street & Avenue 38	2020	0	7	1	8	0	0	0	0	0	12	0	12	1	0	0	1	21
14	Washington Street & Varner Road	2020	5	11	3	19	45	21	10	76	24	25	64	113	0	7	21	28	236
15	Washington Street & I-10 EB Ramps	2020	20	83	0	103	0	0	0	0	0	128	33	161	36	3	138	177	441
16	Washington Street & Country Club Drive	2020	21	112	16	149	5	17	9	31	12	84	5	101	23	39	14	76	357
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	12	32	0	44	41	0	9	50	0	40	35	75	169

Notes:

1. 2020 Traffic Counts conducted on Wednesday, October 28 2020.

Table 2 RCA - 2020 Adjusted Traffic Counts - Weekday (11:00 PM -12:00 AM) 12/7/2020

#	Intersection Location	Traffic Counts[1]	Southbound				Westbound				Northbound				Eastbound				Grand Total
			L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	L	TH	R	Total	
1	Monterey Avenue & Varner Road	2020	3	35	7	45	23	35	29	87	57	39	3	99	11	12	75	98	329
2	Monterrey Avenue & I-10 EB Ramps	2020	65	64	0	129	0	0	0	0	0	151	48	199	15	1	54	70	398
3	Varner Road & Jack Ivy Drive	2020	0	0	0	0	0	14	0	14	0	0	0	0	1	11	0	12	26
4	Cook Street & Varner Road	2020	0	8	1	9	4	5	0	9	7	3	5	15	0	11	4	15	48
5	Cook Street & I-10 WB Ramps	2020	0	14	3	17	44	3	1	48	0	15	64	79	0	0	0	0	144
6	Cook Street & I-10 EB Ramps	2020	5	52	0	57	0	0	0	0	0	73	54	127	3	3	87	93	277
7	Cook Street & Gerald Ford Drive	2020	38	98	16	152	5	5	5	15	10	80	4	94	29	18	11	58	319
8	Cook Street & Frank Sinatra Drive	2020	1	102	11	114	4	10	1	15	16	75	1	92	16	18	10	44	265
9	Cook Street & Country Club Drive	2020	11	83	15	109	10	27	8	45	15	67	5	87	12	46	22	80	321
10	Varner Road & Classic Club Boulevard	2020	0	16	0	16	0	0	0	0	0	11	0	11	0	0	0	0	27
11	Varner Road & Avenue 38	2020	1	8	0	9	1	0	0	1	0	11	0	11	0	0	0	0	21
12	Varner Road & Berkey Drive	2020	4	1	1	6	27	12	10	49	0	0	0	0	1	10	1	12	67
13	Washington Street & Avenue 38	2020	0	10	1	11	0	0	0	0	0	16	0	16	1	0	0	1	28
14	Washington Street & Varner Road	2020	7	15	4	26	60	28	13	101	32	33	85	150	0	9	28	37	314
15	Washington Street & I-10 EB Ramps	2020	27	113	0	140	0	0	0	0	0	174	45	219	49	4	188	241	600
16	Washington Street & Country Club Drive	2020	28	149	21	198	7	23	12	42	16	112	7	135	31	52	19	102	477
17	Varner Road & I-10 WB Ramps	2020	0	0	0	0	16	44	0	60	56	0	12	68	0	54	48	102	230

Notes:

1. The Current 2020 Counts factored by 1.36 to account for Covid.

T816

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rancho Mirage	PROJECT #:	SC1279
Thu, Mar 30, 17	NORTH & SOUTH:	Monterey	LOCATION #:	2
	EAST & WEST:	Varner	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND Monterey			SOUTHBOUND Monterey			EASTBOUND Varner			WESTBOUND Varner			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	1	2	1	1	1.5	1.5	2	2	0	
AM													
7:00 AM	29	29	3	14	96	9	3	13	29	98	33	17	373
7:15 AM	26	20	10	14	109	4	2	29	46	142	52	19	473
7:30 AM	33	45	10	16	140	7	6	24	45	133	51	14	524
7:45 AM	49	56	11	20	134	9	7	17	36	169	59	24	591
8:00 AM	35	26	8	12	112	5	3	28	44	154	41	31	499
8:15 AM	30	47	11	11	123	3	5	15	40	129	29	28	471
8:30 AM	44	46	4	8	122	5	5	15	41	115	27	29	461
8:45 AM	20	57	12	11	106	1	4	12	42	151	28	17	461
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	266	326	69	106	942	43	35	153	323	1,091	320	179	3,853
APPROACH %	40%	49%	10%	10%	86%	4%	7%	30%	63%	69%	20%	11%	
APP/DEPART	661	/	540	1,091	/	2,367	511	/	328	1,590	/	618	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	143	147	39	62	495	25	18	98	171	598	203	88	2,087
APPROACH %	43%	45%	12%	11%	85%	4%	6%	34%	60%	67%	23%	10%	
PEAK HR FACTOR		0.709			0.893			0.932			0.882		0.883
APP/DEPART	329	/	253	582	/	1,268	287	/	199	889	/	367	0
PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	66	90	26	10	83	10	9	26	61	101	50	35	567
4:15 PM	75	106	17	3	97	4	9	25	45	119	56	36	592
4:30 PM	48	100	20	7	109	4	5	21	49	116	60	32	571
4:45 PM	65	92	16	5	90	0	9	21	35	113	57	39	542
5:00 PM	59	97	17	3	101	5	6	31	70	107	44	40	580
5:15 PM	53	111	22	4	85	2	8	23	45	106	41	37	537
5:30 PM	51	92	15	6	87	1	7	9	43	118	53	40	522
5:45 PM	41	103	16	8	84	2	5	5	37	107	43	27	478
VOLUMES	458	791	149	46	736	28	58	161	385	887	404	286	4,389
APPROACH %	33%	57%	11%	6%	91%	3%	10%	27%	64%	56%	26%	18%	
APP/DEPART	1,398	/	1,135	810	/	2,032	604	/	356	1,577	/	866	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	247	395	70	18	397	13	29	98	199	455	217	147	2,285
APPROACH %	35%	55%	10%	4%	93%	3%	9%	30%	61%	56%	26%	18%	
PEAK HR FACTOR		0.899			0.892			0.762			0.970		0.965
APP/DEPART	712	/	571	428	/	1,061	326	/	186	819	/	467	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		0	0	0	0
AM									
7:00 AM	4	0	0	0	4	0	0	6	8
7:15 AM	0	0	0	0	0	0	0	10	4
7:30 AM	2	0	0	0	2	0	0	13	0
7:45 AM	0	0	0	0	0	0	0	10	2
8:00 AM	2	0	0	0	2	0	0	5	5
8:15 AM	0	0	0	0	0	0	0	10	7
8:30 AM	1	0	0	0	1	0	0	7	3
8:45 AM	2	0	0	0	2	0	0	11	9
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	11	0	0	0	11	0	0	72	38
PEAK HR VOLUMES						0	0	38	11
PM									
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	6	0	0	0	6	0	0	13	9
4:15 PM	2	0	0	0	2	0	0	8	12
4:30 PM	1	0	0	0	1	0	0	26	7
4:45 PM	3	0	0	0	3	0	0	13	7
5:00 PM	4	0	0	0	4	0	0	13	9
5:15 PM	2	0	0	0	2	0	0	18	10
5:30 PM	4	0	0	0	4	0	0	19	14
5:45 PM	2	0	0	0	2	0	0	9	7
VOLUMES	24	0	0	0	24	0	0	119	75
PEAK HR VOLUMES						0	0	60	35

Monterey

NORTH SIDE

Varner WEST SIDE EAST SIDE **Varner**

SOUTH SIDE

Monterey

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM															
7:00 AM	0	3	0	0	3	0	2	0	0	2	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	1	2	0	0	0	0	0	1	0	0	1	2
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3
8:45 AM	0	2	0	1	3	0	1	0	1	2	0	1	0	0	1
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	10	0	2	13	0	4	0	1	5	1	6	0	1	8
PM															
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
TOTAL	0	1	0	2	3	0	0	0	1	1	0	1	0	1	2

AimTD LLC

TURNING MOVEMENT COUNTS

Rancho Mirage

SC1279

ALL HOURS

Monterey

TOTAL	1,901	71	1,678	152		1,675
PM	810	28	736	46		1,135
AM	1,091	43	942	106		540

Varner (west)

TOTAL	1,484		93	314	708	1,115
PM	866		58	161	385	604
AM	618		35	153	323	511

Varner (east)

TOTAL	3,167	465	724	1,978		684
PM	1,577	286	404	887		356
AM	1,590	179	320	1,091		328

Monterey

AM	2,367		266	326	69	661
PM	2,032		458	791	149	1,398
TOTAL	4,399		724	1,117	218	2,059

PEAK HOUR

AM 7:15 AM

PM 4:15 PM

Monterey

TOTAL	1,010	38	892	80		824
PM	428	13	397	18		571
AM	582	25	495	62		253

Varner (west)

TOTAL	834		47	196	370	613
PM	467		29	98	199	326
AM	367		18	98	171	287

Varner (east)

TOTAL	1,708	235	420	1,053		385
PM	819	147	217	455		186
AM	889	88	203	598		199

Monterey

AM	1,268		143	147	39	329
PM	1,061		247	395	70	712
Total	2,329		390	542	109	1,041

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: Varner Road
Weather: Clear

File Name : 01_CRV_Monterey_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

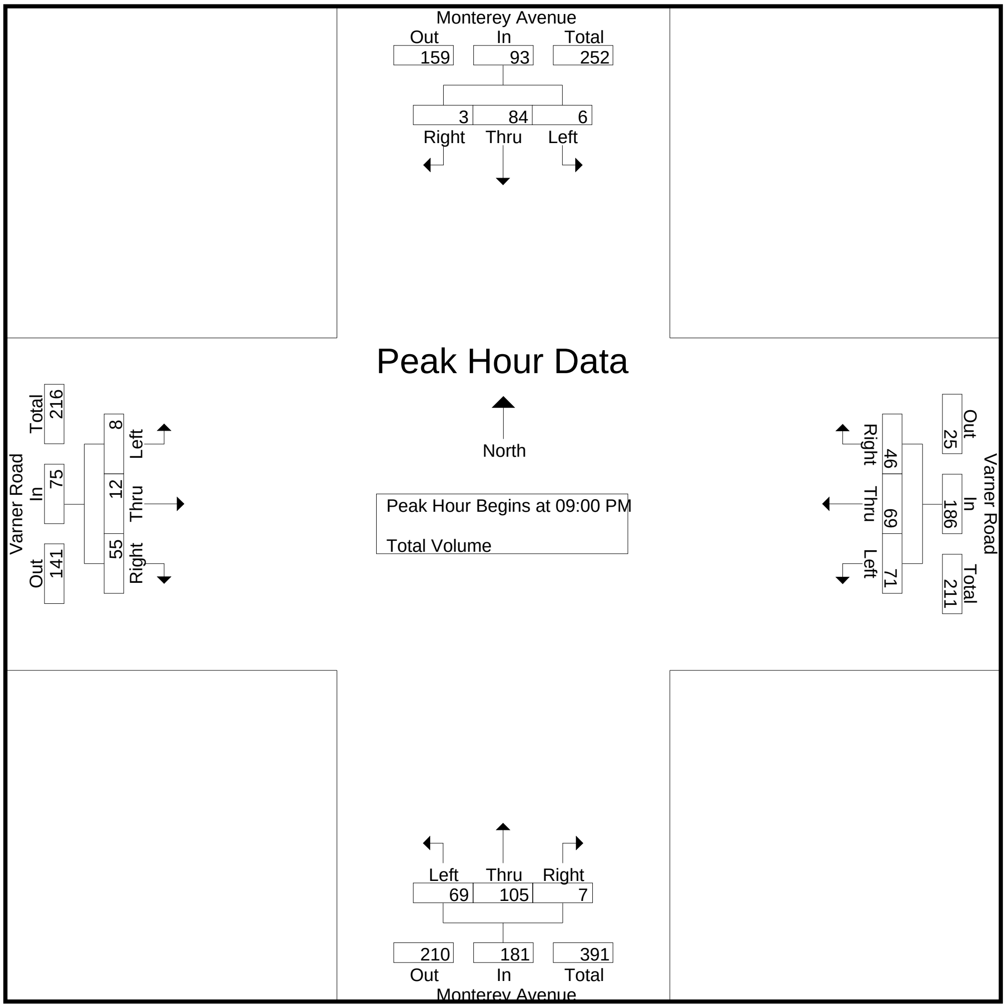
	Monterey Avenue Southbound				Varner Road Westbound				Monterey Avenue Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	2	28	1	31	23	15	19	57	18	29	3	50	4	2	18	24	162
09:15 PM	0	16	1	17	21	26	12	59	19	26	2	47	2	4	13	19	142
09:30 PM	4	19	0	23	13	17	9	39	18	24	2	44	1	4	10	15	121
09:45 PM	0	21	1	22	14	11	6	31	14	26	0	40	1	2	14	17	110
Total	6	84	3	93	71	69	46	186	69	105	7	181	8	12	55	75	535
10:00 PM	0	25	0	25	9	11	10	30	17	24	1	42	3	3	17	23	120
10:15 PM	1	14	0	15	8	13	9	30	8	5	3	16	0	1	18	19	80
10:30 PM	1	11	0	12	6	3	2	11	10	20	1	31	1	0	9	10	64
10:45 PM	0	5	2	7	7	8	4	19	9	10	1	20	1	4	6	11	57
Total	2	55	2	59	30	35	25	90	44	59	6	109	5	8	50	63	321
11:00 PM	0	7	0	7	5	9	5	19	12	9	0	21	4	0	19	23	70
11:15 PM	1	6	1	8	3	3	4	10	4	4	0	8	1	1	7	9	35
11:30 PM	0	9	2	11	2	7	8	17	10	8	1	19	1	3	17	21	68
11:45 PM	1	4	2	7	7	7	4	18	16	8	1	25	2	5	12	19	69
Total	2	26	5	33	17	26	21	64	42	29	2	73	8	9	55	72	242
Grand Total	10	165	10	185	118	130	92	340	155	193	15	363	21	29	160	210	1098
Apprch %	5.4	89.2	5.4		34.7	38.2	27.1		42.7	53.2	4.1		10	13.8	76.2		
Total %	0.9	15	0.9	16.8	10.7	11.8	8.4	31	14.1	17.6	1.4	33.1	1.9	2.6	14.6	19.1	

	Monterey Avenue Southbound				Varner Road Westbound				Monterey Avenue Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	2	**28**	**1**	**31**	**23**	15	**19**	57	18	**29**	**3**	**50**	**4**	2	**18**	**24**	**162**
09:15 PM	0	16	1	17	21	**26**	12	**59**	**19**	26	2	47	2	**4**	13	19	142
09:30 PM	**4**	19	0	23	13	17	9	39	18	24	2	44	1	4	10	15	121
09:45 PM	0	21	1	22	14	11	6	31	14	26	0	40	1	2	14	17	110
Total Volume	6	84	3	93	71	69	46	186	69	105	7	181	8	12	55	75	535
% App. Total	6.5	90.3	3.2		38.2	37.1	24.7		38.1	58	3.9		10.7	16	73.3		
PHF	.375	.750	.750	.750	.772	.663	.605	.788	.908	.905	.583	.905	.500	.750	.764	.781	.826

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: Varner Road
Weather: Clear

File Name : 01_CRV_Monterey_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	2	**28**	**1**	**31**	**23**	15	**19**	57	18	**29**	**3**	**50**	**4**	2	**18**	**24**
+15 mins.	0	16	1	17	21	**26**	12	**59**	**19**	26	2	47	2	**4**	13	19
+30 mins.	**4**	19	0	23	13	17	9	39	18	24	2	44	1	4	10	15
+45 mins.	0	21	1	22	14	11	6	31	14	26	0	40	1	2	14	17
Total Volume	6	84	3	93	71	69	46	186	69	105	7	181	8	12	55	75
% App. Total	6.5	90.3	3.2		38.2	37.1	24.7		38.1	58	3.9		10.7	16	73.3	
PHF	.375	.750	.750	.750	.772	.663	.605	.788	.908	.905	.583	.905	.500	.750	.764	.781

T816

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rancho Mirage	PROJECT #:	SC1279
Thu, Mar 30, 17	NORTH & SOUTH:	Monterey	LOCATION #:	5
	EAST & WEST:	I-10 EB Ramp	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND (Monterey)			SOUTHBOUND (Monterey)			EASTBOUND (I-10 EB Ramp)			WESTBOUND (I-10 EB Ramp)			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	3	1	2	2	X	1.3	0.3	1.3	X	X	X	
AM 7:00 AM	0	114	60	38	181	0	9	0	170	0	0	0	572
7:15 AM	0	115	54	37	250	0	4	0	207	0	0	0	667
7:30 AM	0	156	72	41	296	0	7	0	283	0	0	0	855
7:45 AM	0	193	80	38	308	0	12	0	274	0	0	0	905
8:00 AM	0	133	99	28	253	1	4	0	233	0	0	0	751
8:15 AM	0	166	78	38	244	0	8	0	186	0	0	0	720
8:30 AM	0	159	75	28	219	0	9	1	204	0	0	0	695
8:45 AM	0	164	87	41	252	0	10	0	224	0	0	0	778
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1,200	605	289	2,003	1	63	1	1,781	0	0	0	5,943
APPROACH %	0%	66%	34%	13%	87%	0%	3%	0%	97%	0%	0%	0%	
APP/DEPART	1,805	/	1,263	2,293	/	3,784	1,845	/	895	0	/	1	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	0	648	329	145	1,101	1	31	0	976	0	0	0	3,231
APPROACH %	0%	66%	34%	12%	88%	0%	3%	0%	97%	0%	0%	0%	
PEAK HR FACTOR		0.895			0.901			0.868			0.000		0.893
APP/DEPART	977	/	679	1,247	/	2,077	1,007	/	474	0	/	1	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	335	129	32	188	0	7	2	179	0	0	0	872
4:15 PM	0	387	150	35	208	0	4	1	164	0	0	0	949
4:30 PM	0	344	158	40	201	0	10	1	175	0	0	0	929
4:45 PM	0	374	163	41	193	0	11	0	168	0	0	0	950
5:00 PM	0	359	160	48	195	0	12	1	148	0	0	0	923
5:15 PM	0	369	196	37	187	0	12	0	134	0	0	0	935
5:30 PM	0	347	125	35	196	0	11	1	136	0	0	0	851
5:45 PM	0	323	131	35	193	0	9	0	121	0	0	0	812
VOLUMES	0	2,838	1,212	303	1,561	0	76	6	1,225	0	0	0	7,221
APPROACH %	0%	70%	30%	16%	84%	0%	6%	0%	94%	0%	0%	0%	
APP/DEPART	4,050	/	2,914	1,864	/	2,786	1,307	/	1,521	0	/	0	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	0	1,464	631	164	797	0	37	3	655	0	0	0	3,751
APPROACH %	0%	70%	30%	17%	83%	0%	5%	0%	94%	0%	0%	0%	
PEAK HR FACTOR		0.975			0.989			0.934			0.000		0.987
APP/DEPART	2,095	/	1,501	961	/	1,452	695	/	798	0	/	0	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		0	0	0	0
7:00 AM	0	0	0	0	0	0	0	15	0
7:15 AM	0	0	0	0	0	0	0	4	0
7:30 AM	0	0	0	0	0	0	0	14	0
7:45 AM	0	0	0	0	0	0	0	7	0
8:00 AM	0	0	0	0	0	0	0	10	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	15	0
8:45 AM	0	0	0	0	0	0	0	33	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	98	0
PEAK HR VOLUMES						0	0	31	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	14	0
4:15 PM	0	0	0	0	0	0	0	9	0
4:30 PM	0	0	0	0	0	0	0	10	0
4:45 PM	0	0	0	0	0	0	0	29	0
5:00 PM	0	0	0	0	0	0	0	34	0
5:15 PM	0	0	0	0	0	0	0	23	0
5:30 PM	0	0	0	0	0	0	0	47	0
5:45 PM	0	0	0	0	0	0	0	46	0
VOLUMES	0	0	0	0	0	0	0	212	0
PEAK HR VOLUMES						0	0	82	0

Monterey

NORTH SIDE

I-10 EB Ramp WEST SIDE EAST SIDE **I-10 EB Ramp**

SOUTH SIDE

Monterey

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	3	0	0	4	1	0	0	0	1	0	3	0	0	3
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	8	0	0	9	1	2	0	0	3	0	6	0	0	6
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1

AimTD LLC

TURNING MOVEMENT COUNTS

Rancho Mirage

SC1279

ALL HOURS

Monterey (north)

4,157	1	3,564	592	TOTAL	4,177
1,864	0	1,561	303	PM	2,914
2,293	1	2,003	289	AM	1,263

I-10 EB Ramp (west)

TOTAL	1	139	7	3,006	3,152
PM	0	76	6	1,225	1,307
AM	1	63	1	1,781	1,845

I-10 EB Ramp (east)

AM	0	0	0	0	895
PM	0	0	0	0	1,521
TOTAL	0	0	0	0	2,416

Monterey (south)

3,784	AM	0	1,200	605	1,805
2,786	PM	0	2,838	1,212	4,050
6,570	TOTAL	0	4,038	1,817	5,855

PEAK HOUR

AM 7:30 AM

PM 4:15 PM

Monterey (north)

2,208	1	1,898	309	TOTAL	2,180
961	0	797	164	PM	1,501
1,247	1	1,101	145	AM	679

I-10 EB Ramp (west)

TOTAL	1	68	3	1,631	1,702
PM	0	37	3	655	695
AM	1	31	0	976	1,007

I-10 EB Ramp (east)

AM	0	0	0	0	474
PM	0	0	0	0	798
TOTAL	0	0	0	0	1,272

Monterey (south)

2,077	AM	0	648	329	977
1,452	PM	0	1,464	631	2,095
3,529	Total	0	2,112	960	3,072

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	26	45	0	71	0	0	0	0	0	80	32	112	5	2	46	53	236
09:15 PM	7	44	0	51	0	0	0	0	0	76	28	104	3	0	36	39	194
09:30 PM	5	37	0	42	0	0	0	0	0	92	34	126	4	0	24	28	196
09:45 PM	8	39	0	47	0	0	0	0	0	60	22	82	2	0	28	30	159
Total	46	165	0	211	0	0	0	0	0	308	116	424	14	2	134	150	785
10:00 PM	13	34	0	47	0	0	0	0	0	69	23	92	3	0	25	28	167
10:15 PM	13	22	0	35	0	0	0	0	0	30	15	45	3	0	11	14	94
10:30 PM	10	17	0	27	0	0	0	0	0	42	10	52	6	0	8	14	93
10:45 PM	4	13	0	17	0	0	0	0	0	35	11	46	1	0	12	13	76
Total	40	86	0	126	0	0	0	0	0	176	59	235	13	0	56	69	430
11:00 PM	17	14	0	31	0	0	0	0	0	30	13	43	2	1	12	15	89
11:15 PM	7	8	0	15	0	0	0	0	0	23	5	28	2	0	12	14	57
11:30 PM	13	8	0	21	0	0	0	0	0	26	13	39	4	0	9	13	73
11:45 PM	11	17	0	28	0	0	0	0	0	32	4	36	3	0	7	10	74
Total	48	47	0	95	0	0	0	0	0	111	35	146	11	1	40	52	293
Grand Total	134	298	0	432	0	0	0	0	0	595	210	805	38	3	230	271	1508
Apprch %	31	69	0		0	0	0		0	73.9	26.1		14	1.1	84.9		
Total %	8.9	19.8	0	28.6	0	0	0	0	0	39.5	13.9	53.4	2.5	0.2	15.3	18	
Passenger Vehicles	102	294	0	396	0	0	0	0	0	581	207	788	30	3	228	261	1445
% Passenger Vehicles	76.1	98.7	0	91.7	0	0	0	0	0	97.6	98.6	97.9	78.9	100	99.1	96.3	95.8
Large 2 Axle Vehicles	0	3	0	3	0	0	0	0	0	9	2	11	1	0	0	1	15
% Large 2 Axle Vehicles	0	1	0	0.7	0	0	0	0	0	1.5	1	1.4	2.6	0	0	0.4	1
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0.5	0.1	0	0	0	0	0.1
4+ Axle Trucks	32	1	0	33	0	0	0	0	0	5	0	5	7	0	2	9	47
% 4+ Axle Trucks	23.9	0.3	0	7.6	0	0	0	0	0	0.8	0	0.6	18.4	0	0.9	3.3	3.1

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	**26**	**45**	0	**71**	0	0	0	0	0	80	32	112	**5**	**2**	**46**	**53**	**236**
09:15 PM	7	44	0	51	0	0	0	0	0	76	28	104	3	0	36	39	194
09:30 PM	5	37	0	42	0	0	0	0	0	**92**	**34**	**126**	4	0	24	28	196
09:45 PM	8	39	0	47	0	0	0	0	0	60	22	82	2	0	28	30	159
Total Volume	46	165	0	211	0	0	0	0	0	308	116	424	14	2	134	150	785
% App. Total	21.8	78.2	0		0	0	0		0	72.6	27.4		9.3	1.3	89.3		
PHF	.442	.917	.000	.743	.000	.000	.000	.000	.000	.837	.853	.841	.700	.250	.728	.708	.832

Counts Unlimited
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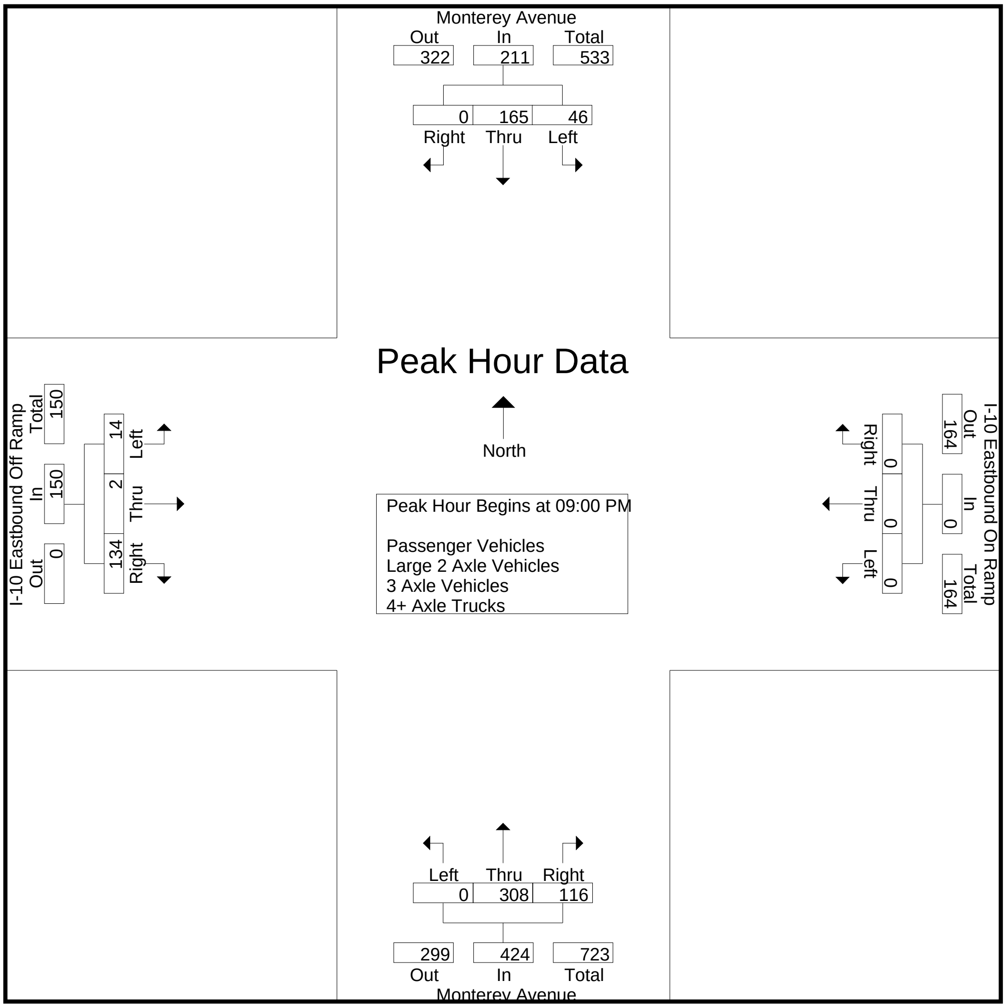
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	**26**	**45**	0	**71**	0	0	0	0	0	80	32	112	**5**	**2**	**46**	**53**
+15 mins.	7	44	0	51	0	0	0	0	0	76	28	104	3	0	36	39
+30 mins.	5	37	0	42	0	0	0	0	0	**92**	**34**	**126**	4	0	24	28
+45 mins.	8	39	0	47	0	0	0	0	0	60	22	82	2	0	28	30
Total Volume	46	165	0	211	0	0	0	0	0	308	116	424	14	2	134	150
% App. Total	21.8	78.2	0		0	0	0		0	72.6	27.4		9.3	1.3	89.3	
PHF	.442	.917	.000	.743	.000	.000	.000	.000	.000	.837	.853	.841	.700	.250	.728	.708

Counts Unlimited
PO Box 1178
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County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	24	43	0	67	0	0	0	0	0	78	32	110	4	2	46	52	229
09:15 PM	5	44	0	49	0	0	0	0	0	73	28	101	3	0	35	38	188
09:30 PM	5	37	0	42	0	0	0	0	0	91	33	124	4	0	24	28	194
09:45 PM	6	39	0	45	0	0	0	0	0	59	22	81	2	0	28	30	156
Total	40	163	0	203	0	0	0	0	0	301	115	416	13	2	133	148	767
10:00 PM	13	33	0	46	0	0	0	0	0	68	23	91	1	0	25	26	163
10:15 PM	10	22	0	32	0	0	0	0	0	30	15	45	2	0	11	13	90
10:30 PM	6	17	0	23	0	0	0	0	0	41	9	50	5	0	8	13	86
10:45 PM	2	13	0	15	0	0	0	0	0	33	10	43	1	0	12	13	71
Total	31	85	0	116	0	0	0	0	0	172	57	229	9	0	56	65	410
11:00 PM	11	14	0	25	0	0	0	0	0	29	13	42	0	1	11	12	79
11:15 PM	7	8	0	15	0	0	0	0	0	21	5	26	2	0	12	14	55
11:30 PM	8	8	0	16	0	0	0	0	0	26	13	39	4	0	9	13	68
11:45 PM	5	16	0	21	0	0	0	0	0	32	4	36	2	0	7	9	66
Total	31	46	0	77	0	0	0	0	0	108	35	143	8	1	39	48	268
Grand Total	102	294	0	396	0	0	0	0	0	581	207	788	30	3	228	261	1445
Apprch %	25.8	74.2	0		0	0	0		0	73.7	26.3		11.5	1.1	87.4		
Total %	7.1	20.3	0	27.4	0	0	0	0	0	40.2	14.3	54.5	2.1	0.2	15.8	18.1	

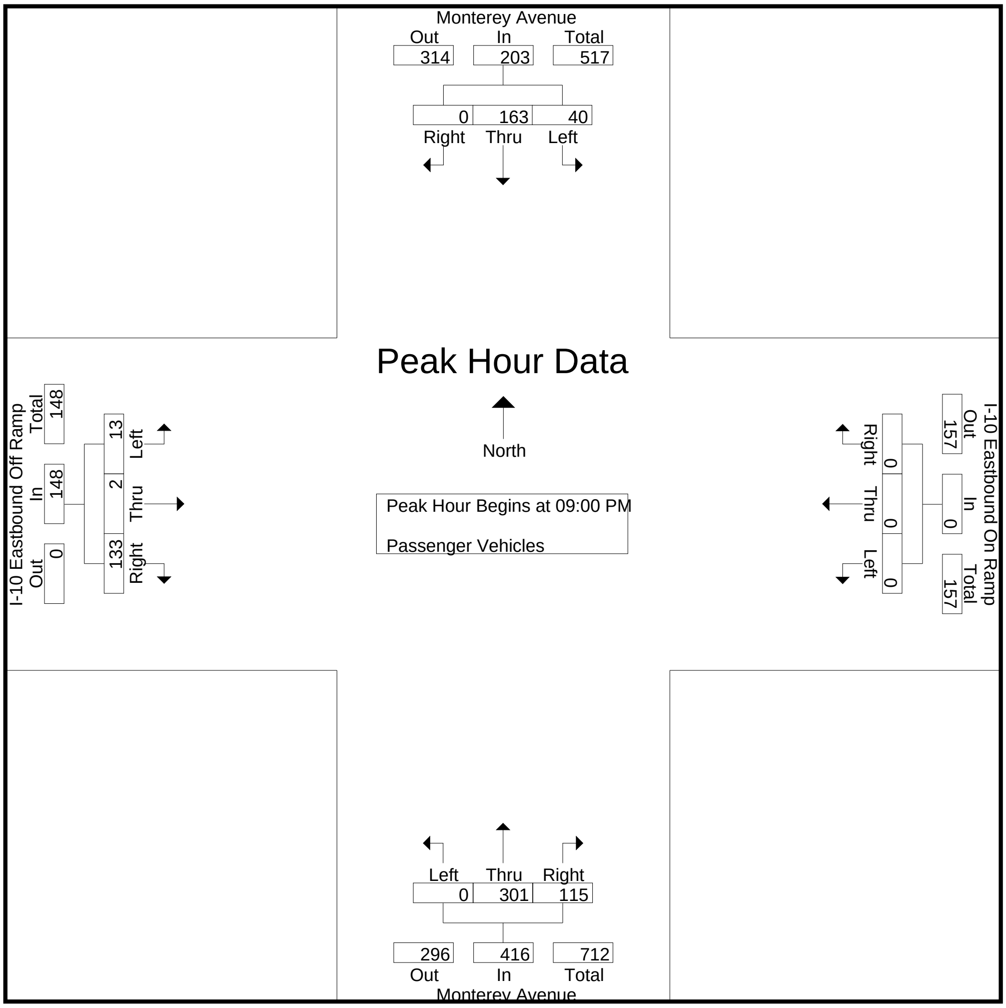
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 09:00 PM

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	**24**	43	0	**67**	0	0	0	0	0	78	32	110	**4**	**2**	**46**	**52**	**229**
09:15 PM	5	**44**	0	49	0	0	0	0	0	73	28	101	3	0	35	38	188
09:30 PM	5	37	0	42	0	0	0	0	0	**91**	**33**	**124**	4	0	24	28	194
09:45 PM	6	39	0	45	0	0	0	0	0	59	22	81	2	0	28	30	156
Total Volume	40	163	0	203	0	0	0	0	0	301	115	416	13	2	133	148	767
% App. Total	19.7	80.3	0		0	0	0		0	72.4	27.6		8.8	1.4	89.9		
PHF	.417	.926	.000	.757	.000	.000	.000	.000	.000	.827	.871	.839	.813	.250	.723	.712	.837

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	**24**	43	0	**67**	0	0	0	0	0	78	32	110	**4**	**2**	**46**	**52**
+15 mins.	5	**44**	0	49	0	0	0	0	0	73	28	101	3	0	35	38
+30 mins.	5	37	0	42	0	0	0	0	0	**91**	**33**	**124**	4	0	24	28
+45 mins.	6	39	0	45	0	0	0	0	0	59	22	81	2	0	28	30
Total Volume	40	163	0	203	0	0	0	0	0	301	115	416	13	2	133	148
% App. Total	19.7	80.3	0		0	0	0		0	72.4	27.6		8.8	1.4	89.9	
PHF	.417	.926	.000	.757	.000	.000	.000	.000	.000	.827	.871	.839	.813	.250	.723	.712

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County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
09:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
09:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0	7
10:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
10:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	2	2	4	0	0	0	0	5
11:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
11:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	1	3
Grand Total	0	3	0	3	0	0	0	0	0	9	2	11	1	0	0	1	15
Apprch %	0	100	0		0	0	0		0	81.8	18.2		100	0	0		
Total %	0	20	0	20	0	0	0	0	0	60	13.3	73.3	6.7	0	0	6.7	

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0	**3**
09:15 PM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	2
09:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0	7
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.583

Counts Unlimited
PO Box 1178
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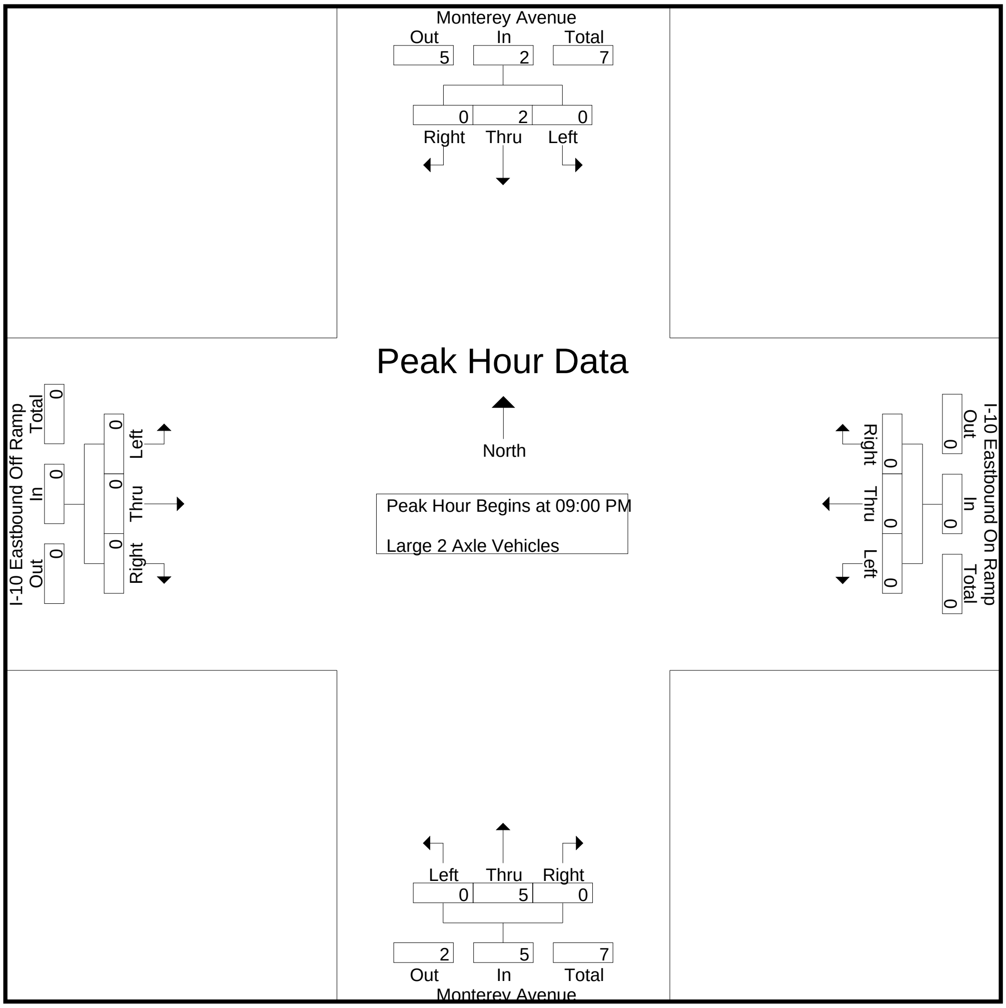
County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	5	0	5	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000

Counts Unlimited
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County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Apprch %	0	0	0		0	0	0		0	0	100		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0	

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

Counts Unlimited
PO Box 1178
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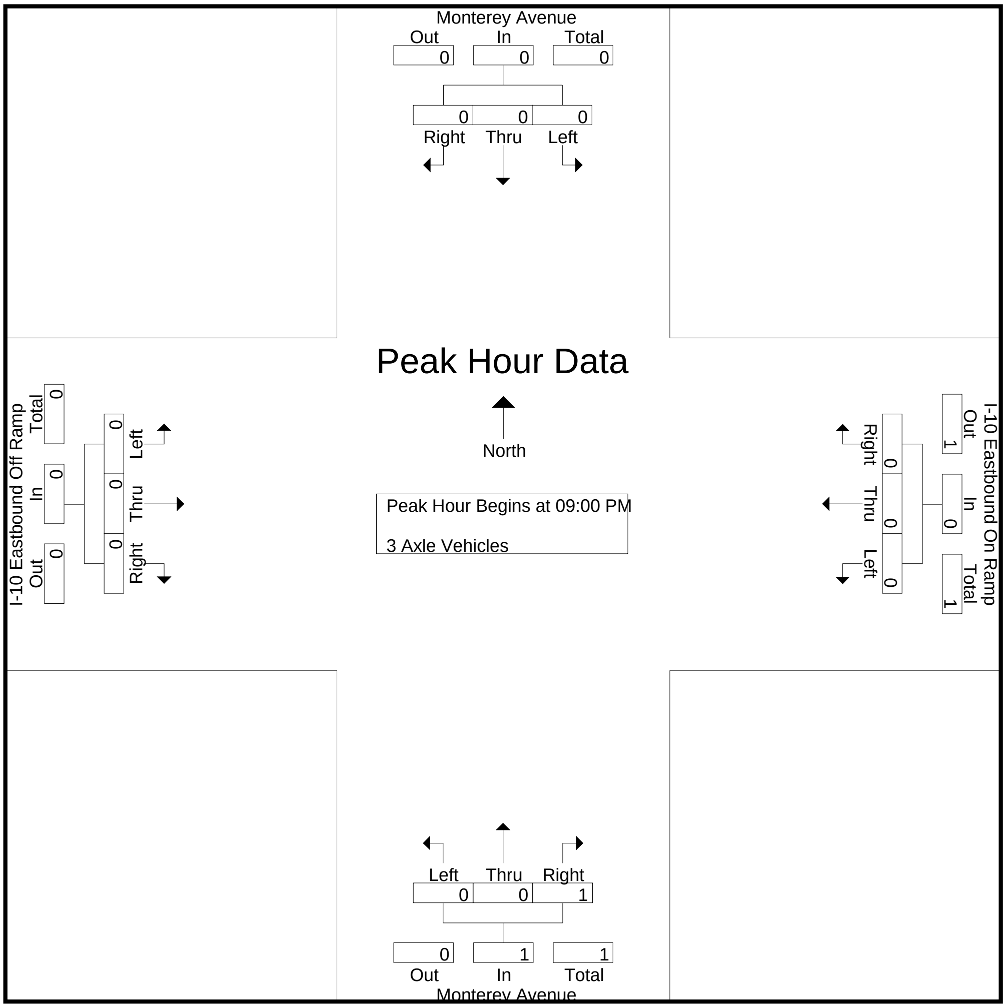
(951) 268-6268

County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

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County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	2	0	0	2	0	0	0	0	0	1	0	1	1	0	0	1	4
09:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	0	0	1	1	4
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	6	0	0	6	0	0	0	0	0	2	0	2	1	0	1	2	10
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
10:15 PM	3	0	0	3	0	0	0	0	0	0	0	0	1	0	0	1	4
10:30 PM	4	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	5
10:45 PM	2	0	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
Total	9	0	0	9	0	0	0	0	0	2	0	2	4	0	0	4	15
11:00 PM	6	0	0	6	0	0	0	0	0	0	0	0	1	0	1	2	8
11:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:30 PM	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
11:45 PM	6	1	0	7	0	0	0	0	0	0	0	0	1	0	0	1	8
Total	17	1	0	18	0	0	0	0	0	1	0	1	2	0	1	3	22
Grand Total	32	1	0	33	0	0	0	0	0	5	0	5	7	0	2	9	47
Apprch %	97	3	0		0	0	0		0	100	0		77.8	0	22.2		
Total %	68.1	2.1	0	70.2	0	0	0	0	0	10.6	0	10.6	14.9	0	4.3	19.1	

	Monterey Avenue Southbound				I-10 Eastbound On Ramp Westbound				Monterey Avenue Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	**2**	0	0	**2**	0	0	0	0	0	**1**	0	**1**	**1**	0	0	**1**	**4**
09:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	0	0	**1**	1	4
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	6	0	0	6	0	0	0	0	0	2	0	2	1	0	1	2	10
% App. Total	100	0	0		0	0	0		0	100	0		50	0	50		
PHF	.750	.000	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500	.250	.000	.250	.500	.625

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PO Box 1178
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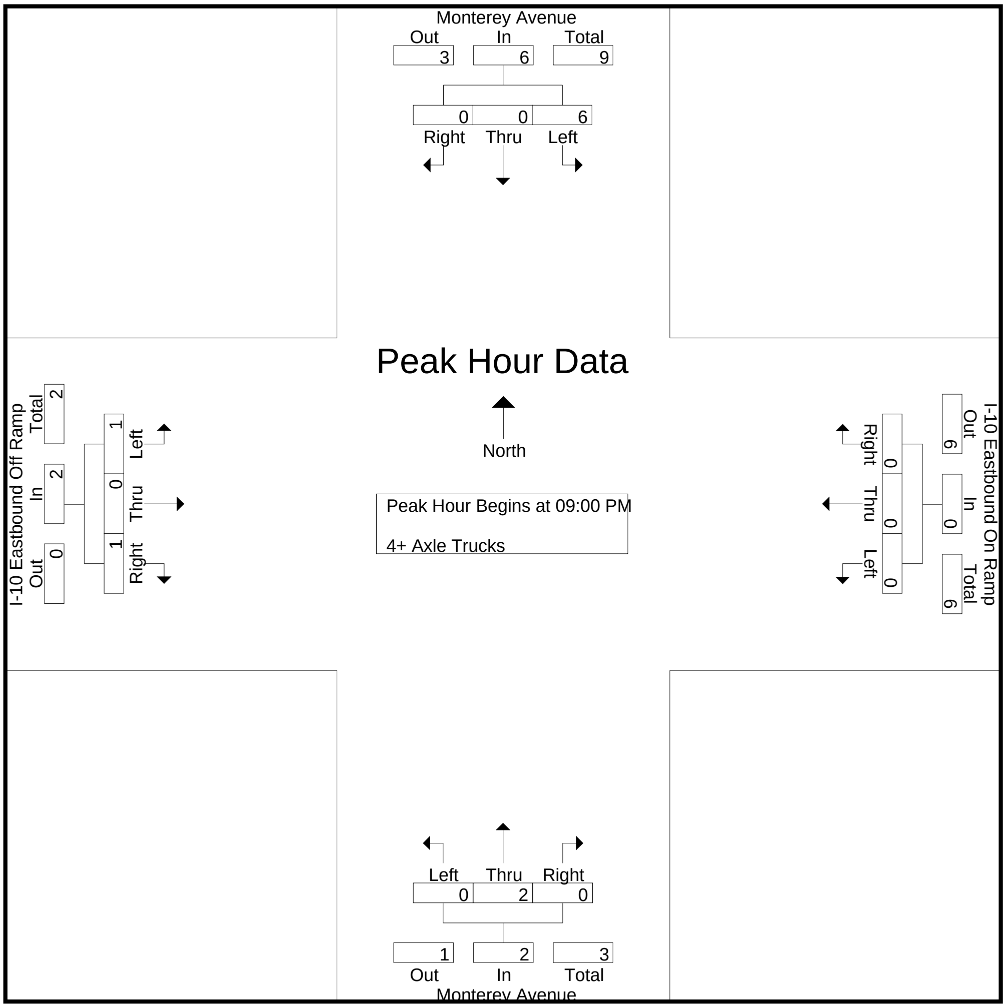
County of Riverside
N/S: Monterey Avenue
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 02_CRV_Monterey_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	**2**	0	0	**2**	0	0	0	0	0	**1**	0	**1**	**1**	0	0	**1**
+15 mins.	2	0	0	2	0	0	0	0	0	1	0	1	0	0	**1**	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	6	0	0	6	0	0	0	0	0	2	0	2	1	0	1	2
% App. Total	100	0	0		0	0	0		0	100	0		50	0	50	
PHF	.750	.000	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500	.250	.000	.250	.500

T816

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rancho Mirage	PROJECT #:	SC1279
Thu, Mar 30, 17	NORTH & SOUTH:	Varner	LOCATION #:	17
	EAST & WEST:	Jack Ivey	CONTROL:	STOP W

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND (Varner)			SOUTHBOUND (Varner)			EASTBOUND (Jack Ivey)			WESTBOUND (Jack Ivey)			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	1	0	0	1	X	X	X	X	0	X	0	
AM													
7:00 AM	0	24	1	3	56	0	0	0	0	6	0	2	92
7:15 AM	0	42	3	3	47	0	0	0	0	10	0	2	107
7:30 AM	0	33	7	2	38	0	0	0	0	4	0	3	87
7:45 AM	0	28	4	3	48	0	0	0	0	8	0	8	99
8:00 AM	0	28	5	5	42	0	0	0	0	6	0	7	93
8:15 AM	0	29	8	7	24	0	0	0	0	11	0	8	87
8:30 AM	0	27	7	4	27	0	0	0	0	7	0	9	81
8:45 AM	0	25	11	1	18	0	0	0	0	5	0	9	69
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	236	46	28	300	0	0	0	0	57	0	48	715
APPROACH %	0%	84%	16%	9%	91%	0%	0%	0%	0%	54%	0%	46%	
APP/DEPART	282	/	284	328	/	356	0	/	75	105	/	0	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	0	131	19	13	175	0	0	0	0	28	0	20	386
APPROACH %	0%	87%	13%	7%	93%	0%	0%	0%	0%	58%	0%	42%	
PEAK HR FACTOR		0.833			0.922			0.000			0.750		0.902
APP/DEPART	150	/	151	188	/	203	0	/	32	48	/	0	0
PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	67	9	14	34	0	0	0	0	7	0	8	139
4:15 PM	0	65	4	2	35	0	0	0	0	5	0	4	115
4:30 PM	0	55	8	8	32	0	0	0	0	7	0	3	113
4:45 PM	0	49	7	5	28	0	0	0	0	6	0	1	96
5:00 PM	0	62	8	3	42	0	0	0	0	4	0	5	124
5:15 PM	0	59	8	5	37	0	0	0	0	4	0	6	119
5:30 PM	0	45	7	5	18	0	0	0	0	7	0	4	86
5:45 PM	0	34	2	5	18	0	0	0	0	7	0	7	73
VOLUMES	0	436	53	47	244	0	0	0	0	47	0	38	865
APPROACH %	0%	89%	11%	16%	84%	0%	0%	0%	0%	55%	0%	45%	
APP/DEPART	489	/	475	291	/	282	0	/	108	85	/	0	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	236	28	29	129	0	0	0	0	25	0	16	463
APPROACH %	0%	89%	11%	18%	82%	0%	0%	0%	0%	61%	0%	39%	
PEAK HR FACTOR		0.868			0.823			0.000			0.683		0.833
APP/DEPART	264	/	253	158	/	149	0	/	61	41	/	0	0

U-TURNS / **RTOR**

	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	1	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	1	1	0	0	0	0
PEAK HR						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	3	3	0	0	0	0
4:15 PM	0	0	0	1	1	0	0	0	0
4:30 PM	0	0	0	1	1	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	3	3	0	0	0	0
5:45 PM	0	0	0	1	1	0	0	0	0
VOLUMES	0	1	0	9	10	0	0	0	0
PEAK HR						0	0	0	0

Varner

NORTH SIDE

Jack Ivey WEST SIDE EAST SIDE **Jack Ivey**

SOUTH SIDE

Varner

ALL PED AND BIKE / **PEDESTRIAN CROSSINGS**

	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
AM										
7:00 AM	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	1	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	1	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0
TOTAL	1	1	0	0	2	0	0	0	0	0
PM										
3:00 PM	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	0	0	1	0	0	0	0	0

BICYCLE CROSSINGS

	ES	WS	SS	NS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	1	1	0	0	2
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL	1	0	0	0	1

AimTD LLC

TURNING MOVEMENT COUNTS

Rancho Mirage

SC1279

ALL HOURS

Varner (north)

TOTAL	**619**	**0**	**544**	**75**	**TOTAL**	**759**
PM	**291**	0	244	47	**PM**	475
AM	**328**	0	300	28	**AM**	284

Jack Ivey (west)

TOTAL	**0**	**0**	**0**	**0**	**0**
PM	0	0	0	0	**0**
AM	0	0	0	0	**0**

Jack Ivey (east)

AM	**105**	48	0	57	75
PM	**85**	38	0	47	108
TOTAL	**190**	**86**	**0**	**104**	**183**

Varner (south)

356	**AM**	0	236	46	**282**
282	**PM**	0	436	53	**489**
638	**TOTAL**	**0**	**672**	**99**	**771**

PEAK HOUR

AM 7:15 AM

PM 4:00 PM

Varner (north)

TOTAL	**346**	**0**	**304**	**42**	**TOTAL**	**404**
PM	**158**	0	129	29	**PM**	253
AM	**188**	0	175	13	**AM**	151

Jack Ivey (west)

TOTAL	**0**	**0**	**0**	**0**	**0**
PM	0	0	0	0	**0**
AM	0	0	0	0	**0**

Jack Ivey (east)

AM	**48**	20	0	28	32
PM	**41**	16	0	25	61
TOTAL	**89**	**36**	**0**	**53**	**93**

Varner (south)

203	**AM**	0	131	19	**150**
149	**PM**	0	236	28	**264**
352	**Total**	**0**	**367**	**47**	**414**

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Jack Ivey Drive
E/W: Varner Road
Weather: Clear

File Name : 03_CRV_Jack Ivey_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Jack Ivey Drive Southbound			Varner Road Westbound			Varner Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
09:00 PM	0	0	0	10	3	13	1	6	7	20
09:15 PM	0	3	3	5	0	5	2	4	6	14
09:30 PM	0	0	0	4	0	4	1	6	7	11
09:45 PM	0	0	0	4	1	5	0	4	4	9
Total	0	3	3	23	4	27	4	20	24	54
10:00 PM	0	0	0	7	0	7	2	4	6	13
10:15 PM	0	0	0	9	2	11	0	5	5	16
10:30 PM	0	1	1	0	0	0	0	0	0	1
10:45 PM	0	0	0	3	0	3	1	4	5	8
Total	0	1	1	19	2	21	3	13	16	38
11:00 PM	0	0	0	2	0	2	0	1	1	3
11:15 PM	0	0	0	2	0	2	1	2	3	5
11:30 PM	0	0	0	4	0	4	0	2	2	6
11:45 PM	0	0	0	2	0	2	0	3	3	5
Total	0	0	0	10	0	10	1	8	9	19
Grand Total	0	4	4	52	6	58	8	41	49	111
Apprch %	0	100		89.7	10.3		16.3	83.7		
Total %	0	3.6	3.6	46.8	5.4	52.3	7.2	36.9	44.1	

	Jack Ivey Drive Southbound			Varner Road Westbound			Varner Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	0	0	0	**10**	**3**	**13**	1	**6**	**7**	**20**
09:15 PM	0	**3**	**3**	5	0	5	**2**	4	6	14
09:30 PM	0	0	0	4	0	4	1	6	7	11
09:45 PM	0	0	0	4	1	5	0	4	4	9
Total Volume	0	3	3	23	4	27	4	20	24	54
% App. Total	0	100		85.2	14.8		16.7	83.3		
PHF	.000	.250	.250	.575	.333	.519	.500	.833	.857	.675

Counts Unlimited
PO Box 1178
Corona, CA 92878
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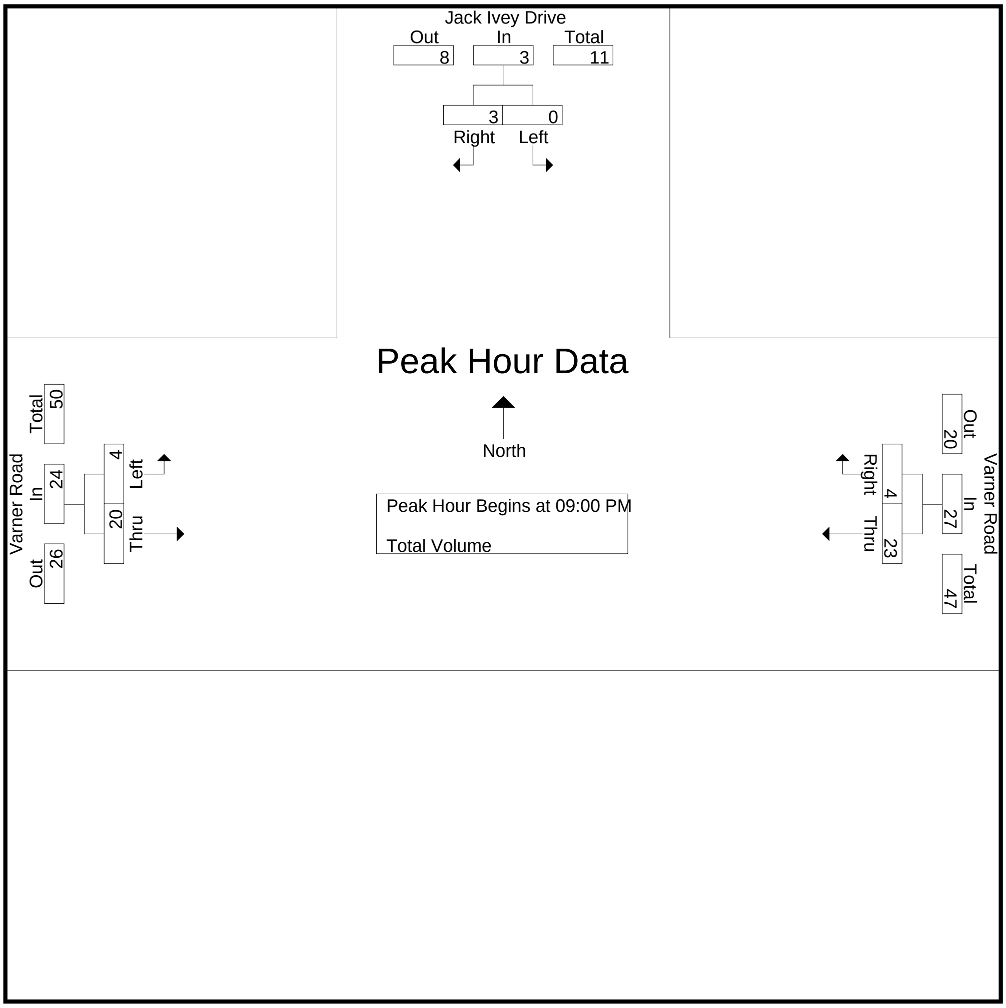
County of Riverside
N/S: Jack Ivey Drive
E/W: Varner Road
Weather: Clear

File Name : 03_CRV_Jack Ivey_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	0	0	0	**10**	**3**	**13**	1	**6**	**7**
+15 mins.	0	**3**	**3**	5	0	5	**2**	4	6
+30 mins.	0	0	0	4	0	4	1	6	7
+45 mins.	0	0	0	4	1	5	0	4	4
Total Volume	0	3	3	23	4	27	4	20	24
% App. Total	0	100		85.2	14.8		16.7	83.3	
PHF	.000	.250	.250	.575	.333	.519	.500	.833	.857

INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rancho Mirage	PROJECT #:	SC1279
Thu, Mar 30, 17	NORTH & SOUTH:	Cook	LOCATION #:	18
	EAST & WEST:	Varner	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

		NORTHBOUND Cook			SOUTHBOUND Cook			EASTBOUND Varner			WESTBOUND Varner			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	1	1	1	1.5	0.5	1	1	0	2	1	1	
AM	7:00 AM	8	32	27	0	13	3	2	9	22	18	15	1	150
	7:15 AM	9	51	27	2	27	2	1	26	33	29	18	1	226
	7:30 AM	11	102	29	7	67	7	7	20	24	31	29	4	338
	7:45 AM	20	87	54	16	92	10	5	16	25	26	13	0	364
	8:00 AM	14	12	28	0	16	1	1	19	30	31	17	0	169
	8:15 AM	17	10	28	1	7	2	1	22	26	32	18	0	164
	8:30 AM	9	9	23	0	2	0	0	18	16	29	28	0	134
	8:45 AM	15	4	30	0	4	0	0	15	19	29	21	1	138
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	103	307	246	26	228	25	17	145	195	225	159	7	1,683
	APPROACH %	16%	47%	38%	9%	82%	9%	5%	41%	55%	58%	41%	2%	
	APP/DEPART	656	/	331	279	/	651	357	/	417	391	/	284	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	54	252	138	25	202	20	14	81	112	117	77	5	1,097
	APPROACH %	12%	57%	31%	10%	82%	8%	7%	39%	54%	59%	39%	3%	
	PEAK HR FACTOR		0.689			0.523			0.863			0.777		0.753
	APP/DEPART	444	/	271	247	/	433	207	/	244	199	/	149	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	32	8	28	5	12	2	2	24	17	19	29	1	179
	4:15 PM	45	13	36	2	12	2	0	19	15	25	35	0	204
	4:30 PM	26	13	24	3	12	1	0	22	21	23	39	1	185
	4:45 PM	27	23	40	0	16	1	1	25	9	24	27	1	194
	5:00 PM	25	14	31	2	12	1	1	33	16	25	34	1	195
	5:15 PM	42	12	35	3	29	2	0	24	10	30	22	0	209
	5:30 PM	33	7	21	1	14	0	1	15	13	23	32	0	160
	5:45 PM	18	9	12	1	8	0	0	12	11	20	19	1	111
	VOLUMES	248	99	227	17	115	9	5	174	112	189	237	5	1,437
	APPROACH %	43%	17%	40%	12%	82%	6%	2%	60%	38%	44%	55%	1%	
	APP/DEPART	574	/	109	141	/	429	291	/	418	431	/	481	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	120	62	130	8	69	5	2	104	56	102	122	3	783
	APPROACH %	38%	20%	42%	10%	84%	6%	1%	64%	35%	45%	54%	1%	
	PEAK HR FACTOR		0.867			0.603			0.810			0.901		0.937
	APP/DEPART	312	/	67	82	/	231	162	/	242	227	/	243	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
	0	0	0	0		0	0	0	1
7:00 AM	0	0	0	0	0	3	0	6	0
7:15 AM	1	0	0	0	1	7	0	9	0
7:30 AM	0	0	0	0	0	4	1	8	0
7:45 AM	0	0	0	0	0	2	1	6	0
8:00 AM	1	0	0	0	1	8	0	6	0
8:15 AM	0	0	0	0	0	7	0	12	0
8:30 AM	1	0	0	0	1	7	0	4	0
8:45 AM	0	0	0	0	0	6	0	10	1
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	3	0	0	0	3	44	2	61	1
PEAK HR VOLUMES						21	2	29	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	2	0	0	0	2	5	0	4	0
4:15 PM	5	0	0	0	5	4	0	5	0
4:30 PM	2	0	0	0	2	2	0	2	0
4:45 PM	0	0	0	0	0	3	0	1	0
5:00 PM	2	0	0	0	2	6	1	7	0
5:15 PM	0	0	0	0	0	5	1	5	0
5:30 PM	1	0	0	0	1	2	0	2	0
5:45 PM	1	0	0	0	1	0	0	5	0
VOLUMES	13	0	0	0	13	27	2	31	0
PEAK HR VOLUMES						16	2	15	0

Cook

NORTH SIDE

Varner WEST SIDE EAST SIDE **Varner**

SOUTH SIDE

Cook

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	1	0	1	2	0	0	0	0	0	0	1	0	1	2
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	1	0	1	2	0	0	0	0	0	0	1	0	1	2
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS

Rancho Mirage

SC1279

ALL HOURS

Cook (north leg)

TOTAL	**420**	**34**	**343**	**43**
PM	**141**	9	115	17
AM	**279**	25	228	26

TOTAL	**440**
PM	109
AM	331

Varner (west leg)

TOTAL	**765**
PM	481
AM	284

TOTAL	**22**	**319**	**307**	**648**
PM	5	174	112	**291**
AM	17	145	195	**357**

Varner (east leg)

AM	**391**	7	159	225
PM	**431**	5	237	189
TOTAL	**822**	**12**	**396**	**414**

AM	417
PM	418
TOTAL	**835**

Cook (south leg)

AM	651
PM	429
TOTAL	**1,080**

AM	103	307	246	**656**
PM	248	99	227	**574**
TOTAL	**351**	**406**	**473**	**1,230**

PEAK HOUR

AM 7:15 AM

PM 4:30 PM

Cook (north leg)

TOTAL	**329**	**25**	**271**	**33**
PM	**82**	5	69	8
AM	**247**	20	202	25

TOTAL	**338**
PM	67
AM	271

Varner (west leg)

TOTAL	**392**
PM	243
AM	149

TOTAL	**16**	**185**	**168**	**369**
PM	2	104	56	**162**
AM	14	81	112	**207**

Varner (east leg)

AM	**199**	5	77	117
PM	**227**	3	122	102
TOTAL	**426**	**8**	**199**	**219**

AM	244
PM	242
TOTAL	**486**

Cook (south leg)

AM	433
PM	231
Total	**664**

AM	54	252	138	**444**
PM	120	62	130	**312**
Total	**174**	**314**	**268**	**756**

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County of Riverside
N/S: Cook Street
E/W: Varner Road
Weather: Clear

File Name : 04_CRV_Cook_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Cook Street Southbound				Varner Road Westbound				Cook Street Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	4	7	0	11	6	0	3	9	0	4	1	5	25
09:15 PM	0	0	0	0	1	6	1	8	0	0	4	4	0	1	3	4	16
09:30 PM	1	0	0	1	1	0	0	1	5	0	4	9	0	4	2	6	17
09:45 PM	0	2	0	2	2	4	0	6	3	1	5	9	0	3	2	5	22
Total	1	2	0	3	8	17	1	26	14	1	16	31	0	12	8	20	80
10:00 PM	0	1	0	1	2	3	0	5	3	1	2	6	0	4	0	4	16
10:15 PM	1	0	0	1	1	6	0	7	5	1	1	7	0	3	3	6	21
10:30 PM	0	0	0	0	2	1	0	3	0	0	1	1	0	0	0	0	4
10:45 PM	0	0	0	0	1	2	1	4	0	0	1	1	0	3	1	4	9
Total	1	1	0	2	6	12	1	19	8	2	5	15	0	10	4	14	50
11:00 PM	0	1	0	1	2	1	0	3	1	1	1	3	0	1	1	2	9
11:15 PM	0	0	0	0	1	1	0	2	1	0	0	1	0	3	0	3	6
11:30 PM	0	4	1	5	0	1	0	1	2	0	1	3	0	2	0	2	11
11:45 PM	0	1	0	1	0	1	0	1	1	1	2	4	0	2	2	4	10
Total	0	6	1	7	3	4	0	7	5	2	4	11	0	8	3	11	36
Grand Total	2	9	1	12	17	33	2	52	27	5	25	57	0	30	15	45	166
Apprch %	16.7	75	8.3		32.7	63.5	3.8		47.4	8.8	43.9		0	66.7	33.3		
Total %	1.2	5.4	0.6	7.2	10.2	19.9	1.2	31.3	16.3	3	15.1	34.3	0	18.1	9	27.1	

	Cook Street Southbound				Varner Road Westbound				Cook Street Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	**4**	**7**	0	**11**	**6**	0	3	**9**	0	**4**	1	5	**25**
09:15 PM	0	0	0	0	1	6	**1**	8	0	0	4	4	0	1	**3**	4	16
09:30 PM	**1**	0	0	1	1	0	0	1	5	0	4	9	0	4	2	**6**	17
09:45 PM	0	**2**	0	**2**	2	4	0	6	3	**1**	**5**	9	0	3	2	5	22
Total Volume	1	2	0	3	8	17	1	26	14	1	16	31	0	12	8	20	80
% App. Total	33.3	66.7	0		30.8	65.4	3.8		45.2	3.2	51.6		0	60	40		
PHF	.250	.250	.000	.375	.500	.607	.250	.591	.583	.250	.800	.861	.000	.750	.667	.833	.800

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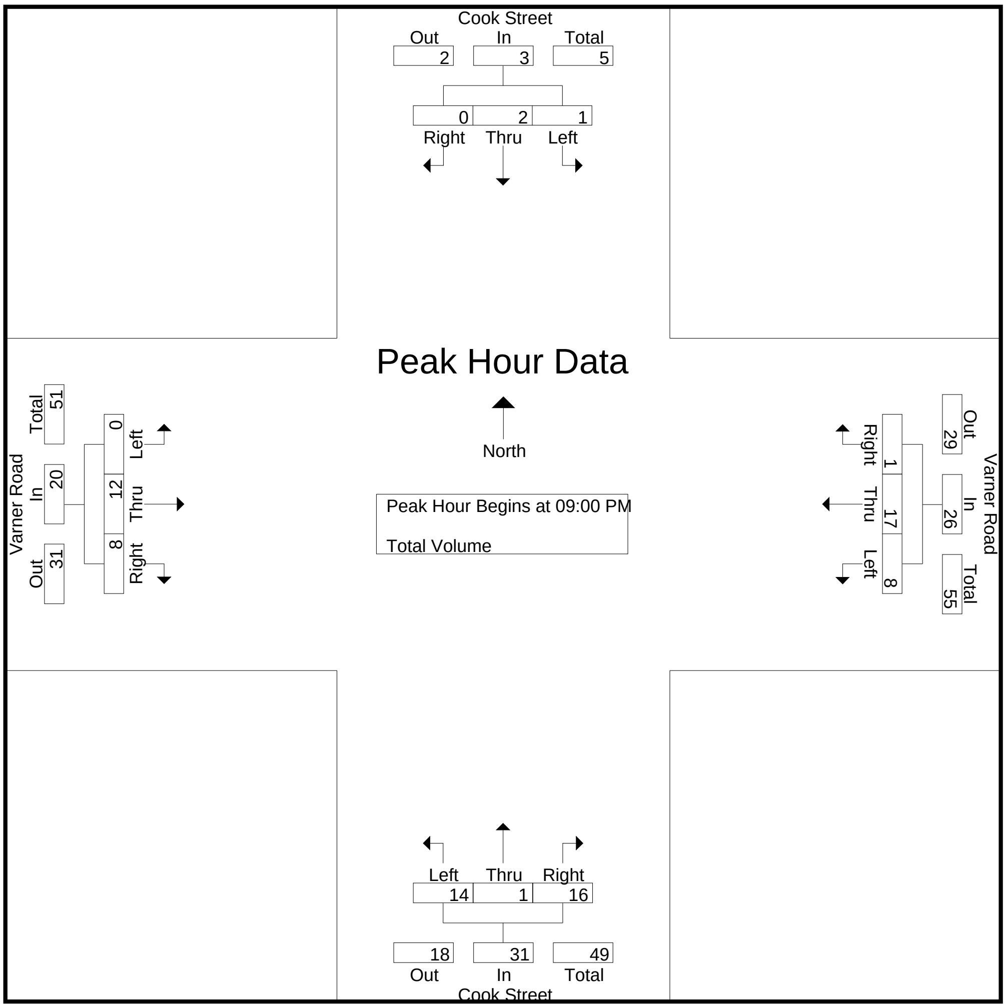
County of Riverside
N/S: Cook Street
E/W: Varner Road
Weather: Clear

File Name : 04_CRV_Cook_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 PM				09:00 PM				09:00 PM				09:30 PM			
+0 mins.	0	1	0	1	**4**	**7**	0	**11**	**6**	0	3	**9**	0	**4**	2	**6**
+15 mins.	0	0	0	0	1	6	**1**	8	0	0	4	4	0	3	2	5
+30 mins.	0	**4**	**1**	**5**	1	0	0	1	5	0	4	9	0	4	0	4
+45 mins.	0	1	0	1	2	4	0	6	3	**1**	**5**	9	0	3	**3**	6
Total Volume	0	6	1	7	8	17	1	26	14	1	16	31	0	14	7	21
% App. Total	0	85.7	14.3		30.8	65.4	3.8		45.2	3.2	51.6		0	66.7	33.3	
PHF	.000	.375	.250	.350	.500	.607	.250	.591	.583	.250	.800	.861	.000	.875	.583	.875

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City of Palm Desert
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 04_PLD_Cook_10W Thurs
Site Code : 05118939
Start Date : 1/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound					I-10 Westbound Ramps Westbound					Cook Street Northbound					I-10 Westbound On Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	0	66	12	3	78	90	1	7	7	98	2	97	144	0	243	0	0	0	0	0	10	419	429
03:15 PM	0	57	6	2	63	102	0	11	4	113	0	86	137	0	223	0	0	0	0	0	6	399	405
03:30 PM	0	55	11	4	66	117	1	5	2	123	1	86	147	0	234	0	0	0	0	0	6	423	429
03:45 PM	0	62	9	2	71	119	0	6	3	125	2	100	159	0	261	0	0	0	0	0	5	457	462
Total	0	240	38	11	278	428	2	29	16	459	5	369	587	0	961	0	0	0	0	0	27	1698	1725
04:00 PM	0	53	10	7	63	107	0	9	5	116	0	70	161	0	231	0	0	0	0	0	12	410	422
04:15 PM	0	54	9	5	63	92	0	9	8	101	1	72	169	0	242	0	0	0	0	0	13	406	419
04:30 PM	0	52	11	4	63	110	0	16	3	126	0	85	153	0	238	0	0	0	0	0	7	427	434
04:45 PM	0	46	4	2	50	121	0	8	3	129	1	84	161	0	246	0	0	0	0	0	5	425	430
Total	0	205	34	18	239	430	0	42	19	472	2	311	644	0	957	0	0	0	0	0	37	1668	1705
05:00 PM	0	71	14	6	85	99	0	7	6	106	1	83	172	0	256	0	0	0	0	0	12	447	459
05:15 PM	0	56	9	5	65	121	1	13	4	135	0	97	175	0	272	0	0	0	0	0	9	472	481
05:30 PM	0	53	7	3	60	116	0	7	3	123	0	60	164	0	224	0	0	0	0	0	6	407	413
05:45 PM	0	44	5	0	49	103	2	12	5	117	2	40	104	0	146	0	0	0	0	0	5	312	317
Total	0	224	35	14	259	439	3	39	18	481	3	280	615	0	898	0	0	0	0	0	32	1638	1670
06:00 PM	0	37	6	3	43	55	0	11	8	66	0	47	105	0	152	0	0	0	0	0	11	261	272
06:15 PM	0	26	4	0	30	64	1	5	2	70	0	37	62	0	99	0	0	0	0	0	2	199	201
06:30 PM	0	33	8	4	41	56	0	9	5	65	1	33	66	0	100	0	0	0	0	0	9	206	215
06:45 PM	0	34	5	1	39	40	0	7	4	47	1	17	58	0	76	0	0	0	0	0	5	162	167
Total	0	130	23	8	153	215	1	32	19	248	2	134	291	0	427	0	0	0	0	0	27	828	855
Grand Total	0	799	130	51	929	1512	6	142	72	1660	12	1094	2137	0	3243	0	0	0	0	0	123	5832	5955
Apprch %	0	86	14			91.1	0.4	8.6			0.4	33.7	65.9			0	0	0					
Total %	0	13.7	2.2		15.9	25.9	0.1	2.4		28.5	0.2	18.8	36.6		55.6	0	0	0		0	2.1	97.9	
Passenger Vehicles	0	779	128		957	1482	5	139		1696	12	1040	2072		3124	0	0	0		0	0	0	5777
% Passenger Vehicles	0	97.5	98.5	98	97.7	98	83.3	97.9	97.2	97.9	100	95.1	97	0	96.3	0	0	0	0	0	0	0	97
Large 2 Axle Vehicles	0	11	1		13	23	0	2		26	0	43	40		83	0	0	0		0	0	0	122
% Large 2 Axle Vehicles	0	1.4	0.8	2	1.3	1.5	0	1.4	1.4	1.5	0	3.9	1.9	0	2.6	0	0	0	0	0	0	0	2
3 Axle Vehicles	0	6	1		7	3	0	1		5	0	1	12		13	0	0	0		0	0	0	25
% 3 Axle Vehicles	0	0.8	0.8	0	0.7	0.2	0	0.7	1.4	0.3	0	0.1	0.6	0	0.4	0	0	0	0	0	0	0	0.4
4+ Axle Trucks	0	3	0		3	4	1	0		5	0	10	13		23	0	0	0		0	0	0	31
% 4+ Axle Trucks	0	0.4	0	0	0.3	0.3	16.7	0	0	0.3	0	0.9	0.6	0	0.7	0	0	0	0	0	0	0	0.5

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County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	3	2	5	23	0	1	24	2	8	23	33	0	0	0	0	62
09:15 PM	0	4	0	4	25	1	0	26	1	5	29	35	0	0	0	0	65
09:30 PM	0	3	1	4	15	0	3	18	0	6	17	23	0	0	0	0	45
09:45 PM	0	7	0	7	21	0	1	22	0	8	12	20	0	0	0	0	49
Total	0	17	3	20	84	1	5	90	3	27	81	111	0	0	0	0	221
10:00 PM	0	3	0	3	15	1	1	17	1	5	25	31	0	0	0	0	51
10:15 PM	0	4	0	4	12	0	2	14	1	5	14	20	0	0	0	0	38
10:30 PM	1	1	1	3	14	0	0	14	0	1	10	11	0	0	0	0	28
10:45 PM	0	2	0	2	17	0	0	17	0	2	13	15	0	0	0	0	34
Total	1	10	1	12	58	1	3	62	2	13	62	77	0	0	0	0	151
11:00 PM	0	3	1	4	7	0	1	8	0	2	19	21	0	0	0	0	33
11:15 PM	0	1	0	1	8	1	0	9	0	2	12	14	0	0	0	0	24
11:30 PM	0	3	1	4	10	1	0	11	0	3	9	12	0	0	0	0	27
11:45 PM	0	3	0	3	7	0	0	7	0	4	7	11	0	0	0	0	21
Total	0	10	2	12	32	2	1	35	0	11	47	58	0	0	0	0	105
Grand Total	1	37	6	44	174	4	9	187	5	51	190	246	0	0	0	0	477
Apprch %	2.3	84.1	13.6		93	2.1	4.8		2	20.7	77.2		0	0	0		
Total %	0.2	7.8	1.3	9.2	36.5	0.8	1.9	39.2	1	10.7	39.8	51.6	0	0	0	0	
Passenger Vehicles	1	37	5	43	170	1	9	180	5	50	186	241	0	0	0	0	464
% Passenger Vehicles	100	100	83.3	97.7	97.7	25	100	96.3	100	98	97.9	98	0	0	0	0	97.3
Large 2 Axle Vehicles	0	0	1	1	2	0	0	2	0	1	1	2	0	0	0	0	5
% Large 2 Axle Vehicles	0	0	16.7	2.3	1.1	0	0	1.1	0	2	0.5	0.8	0	0	0	0	1
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
% 3 Axle Vehicles	0	0	0	0	0	25	0	0.5	0	0	0.5	0.4	0	0	0	0	0.4
4+ Axle Trucks	0	0	0	0	2	2	0	4	0	0	2	2	0	0	0	0	6
% 4+ Axle Trucks	0	0	0	0	1.1	50	0	2.1	0	0	1.1	0.8	0	0	0	0	1.3

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	3	**2**	5	23	0	1	24	**2**	**8**	23	33	0	0	0	0	62
09:15 PM	0	4	0	4	**25**	**1**	0	**26**	1	5	**29**	**35**	0	0	0	0	**65**
09:30 PM	0	3	1	4	15	0	**3**	18	0	6	17	23	0	0	0	0	45
09:45 PM	0	**7**	0	**7**	21	0	1	22	0	8	12	20	0	0	0	0	49
Total Volume	0	17	3	20	84	1	5	90	3	27	81	111	0	0	0	0	221
% App. Total	0	85	15		93.3	1.1	5.6		2.7	24.3	73		0	0	0		
PHF	.000	.607	.375	.714	.840	.250	.417	.865	.375	.844	.698	.793	.000	.000	.000	.000	.850

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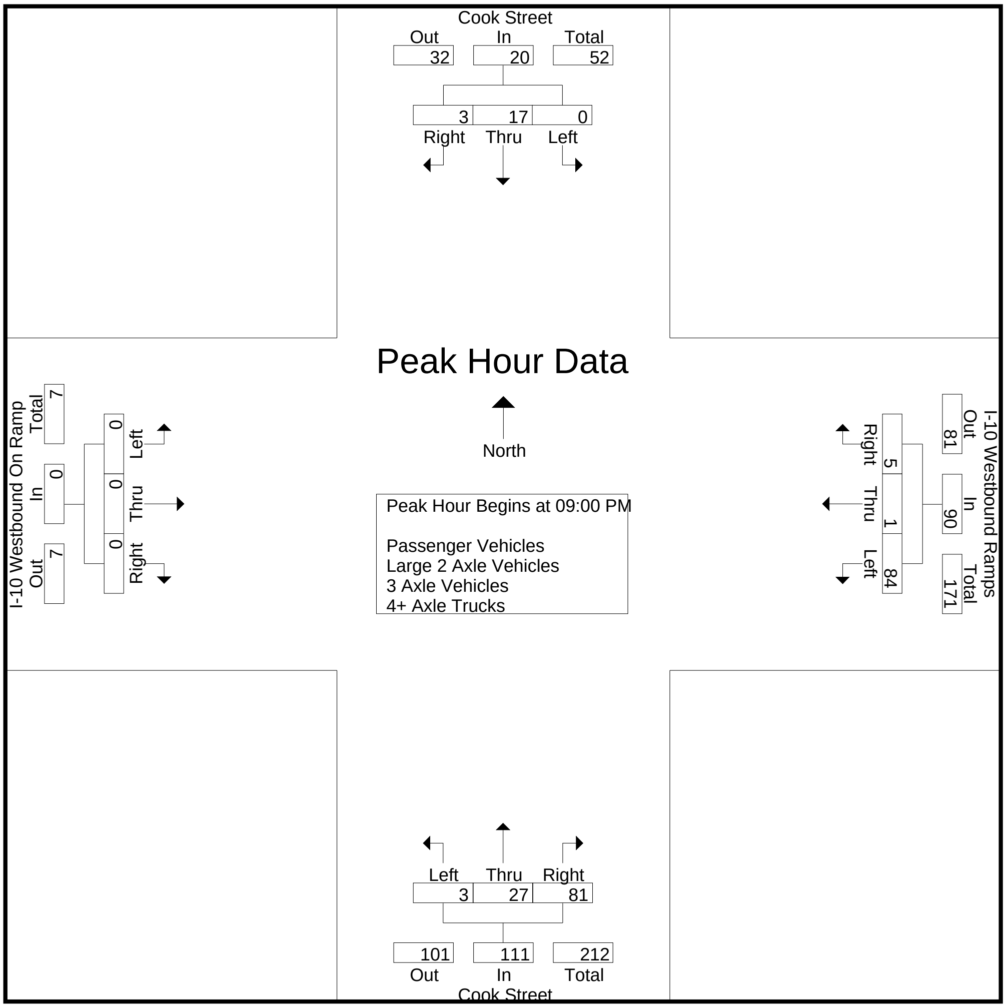
County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	3	**2**	5	23	0	1	24	**2**	**8**	23	33	0	0	0	0
+15 mins.	0	4	0	4	**25**	**1**	0	**26**	1	5	**29**	**35**	0	0	0	0
+30 mins.	0	3	1	4	15	0	**3**	18	0	6	17	23	0	0	0	0
+45 mins.	0	**7**	0	**7**	21	0	1	22	0	8	12	20	0	0	0	0
Total Volume	0	17	3	20	84	1	5	90	3	27	81	111	0	0	0	0
% App. Total	0	85	15		93.3	1.1	5.6		2.7	24.3	73		0	0	0	
PHF	.000	.607	.375	.714	.840	.250	.417	.865	.375	.844	.698	.793	.000	.000	.000	.000

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County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	3	1	4	22	0	1	23	2	8	23	33	0	0	0	0	60
09:15 PM	0	4	0	4	25	1	0	26	1	5	28	34	0	0	0	0	64
09:30 PM	0	3	1	4	15	0	3	18	0	6	16	22	0	0	0	0	44
09:45 PM	0	7	0	7	21	0	1	22	0	8	12	20	0	0	0	0	49
Total	0	17	2	19	83	1	5	89	3	27	79	109	0	0	0	0	217
10:00 PM	0	3	0	3	15	0	1	16	1	5	25	31	0	0	0	0	50
10:15 PM	0	4	0	4	12	0	2	14	1	5	14	20	0	0	0	0	38
10:30 PM	1	1	1	3	14	0	0	14	0	1	10	11	0	0	0	0	28
10:45 PM	0	2	0	2	15	0	0	15	0	2	13	15	0	0	0	0	32
Total	1	10	1	12	56	0	3	59	2	13	62	77	0	0	0	0	148
11:00 PM	0	3	1	4	7	0	1	8	0	1	18	19	0	0	0	0	31
11:15 PM	0	1	0	1	7	0	0	7	0	2	11	13	0	0	0	0	21
11:30 PM	0	3	1	4	10	0	0	10	0	3	9	12	0	0	0	0	26
11:45 PM	0	3	0	3	7	0	0	7	0	4	7	11	0	0	0	0	21
Total	0	10	2	12	31	0	1	32	0	10	45	55	0	0	0	0	99
Grand Total	1	37	5	43	170	1	9	180	5	50	186	241	0	0	0	0	464
Apprch %	2.3	86	11.6		94.4	0.6	5		2.1	20.7	77.2		0	0	0		
Total %	0.2	8	1.1	9.3	36.6	0.2	1.9	38.8	1.1	10.8	40.1	51.9	0	0	0	0	

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	3	**1**	4	22	0	1	23	**2**	**8**	23	33	0	0	0	0	60
09:15 PM	0	4	0	4	**25**	**1**	0	**26**	1	5	**28**	**34**	0	0	0	0	**64**
09:30 PM	0	3	1	4	15	0	**3**	18	0	6	16	22	0	0	0	0	44
09:45 PM	0	**7**	0	**7**	21	0	1	22	0	8	12	20	0	0	0	0	49
Total Volume	0	17	2	19	83	1	5	89	3	27	79	109	0	0	0	0	217
% App. Total	0	89.5	10.5		93.3	1.1	5.6		2.8	24.8	72.5		0	0	0		
PHF	.000	.607	.500	.679	.830	.250	.417	.856	.375	.844	.705	.801	.000	.000	.000	.000	.848

Counts Unlimited
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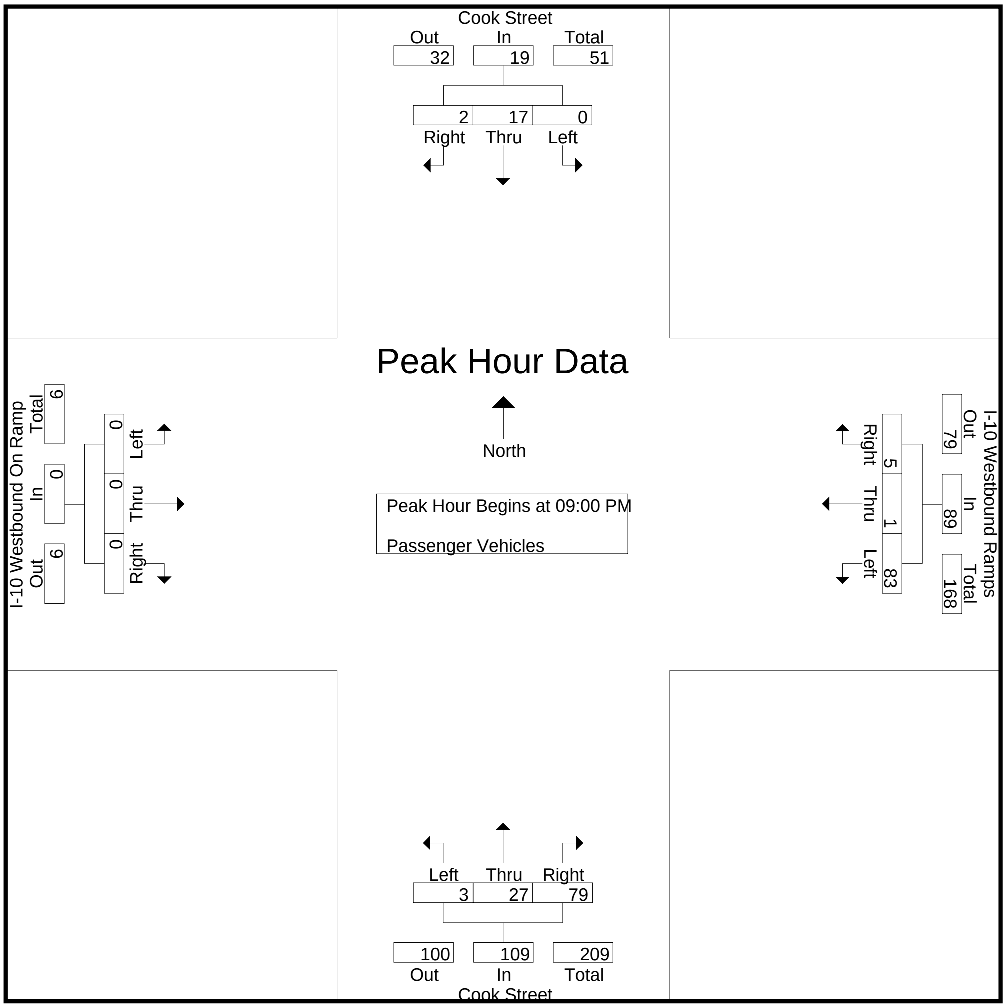
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	3	**1**	4	22	0	1	23	**2**	**8**	23	33	0	0	0	0
+15 mins.	0	4	0	4	**25**	**1**	0	**26**	1	5	**28**	**34**	0	0	0	0
+30 mins.	0	3	1	4	15	0	**3**	18	0	6	16	22	0	0	0	0
+45 mins.	0	**7**	0	**7**	21	0	1	22	0	8	12	20	0	0	0	0
Total Volume	0	17	2	19	83	1	5	89	3	27	79	109	0	0	0	0
% App. Total	0	89.5	10.5		93.3	1.1	5.6		2.8	24.8	72.5		0	0	0	
PHF	.000	.607	.500	.679	.830	.250	.417	.856	.375	.844	.705	.801	.000	.000	.000	.000

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2
11:00 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
Grand Total	0	0	1	1	2	0	0	2	0	1	1	2	0	0	0	0	5
Apprch %	0	0	100		100	0	0		0	50	50		0	0	0		
Total %	0	0	20	20	40	0	0	40	0	20	20	40	0	0	0	0	

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Counts Unlimited
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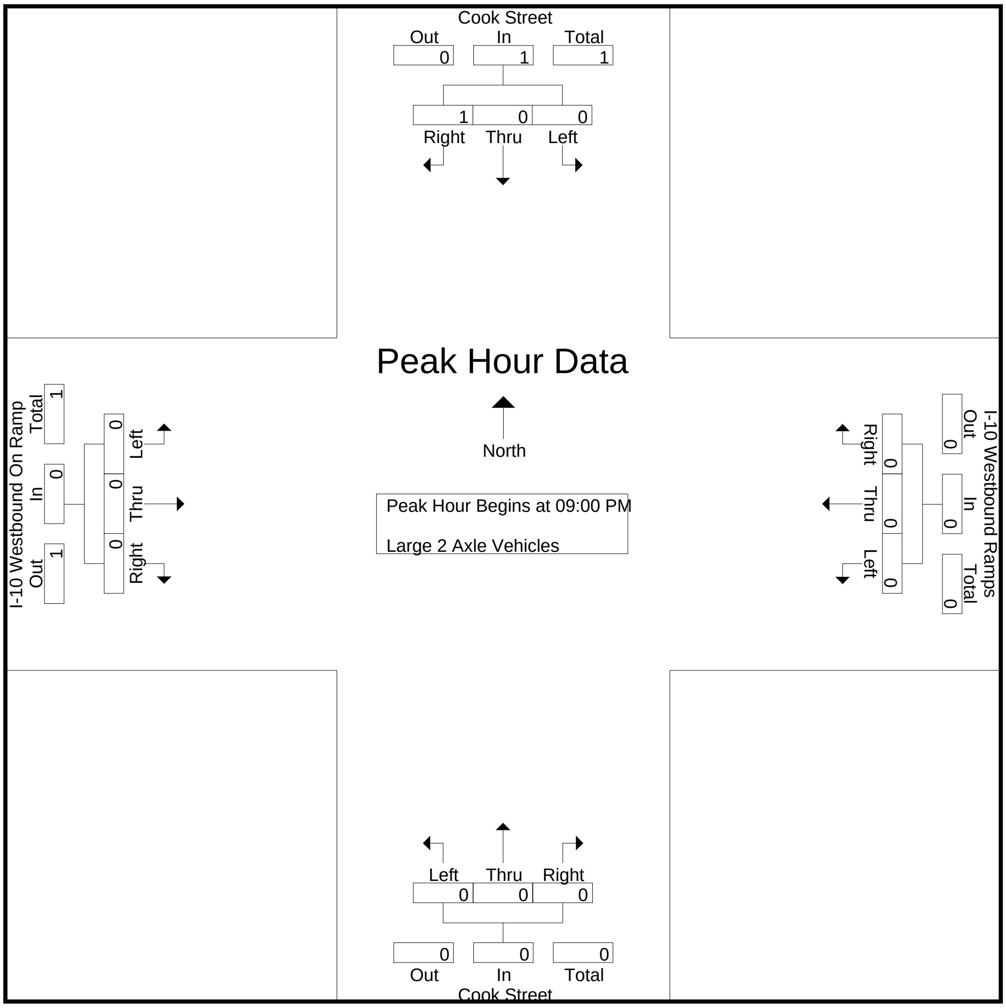
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited
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Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
Apprch %	0	0	0		0	100	0		0	0	100		0	0	0		
Total %	0	0	0	0	0	50	0	50	0	0	50	50	0	0	0	0	

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

Counts Unlimited
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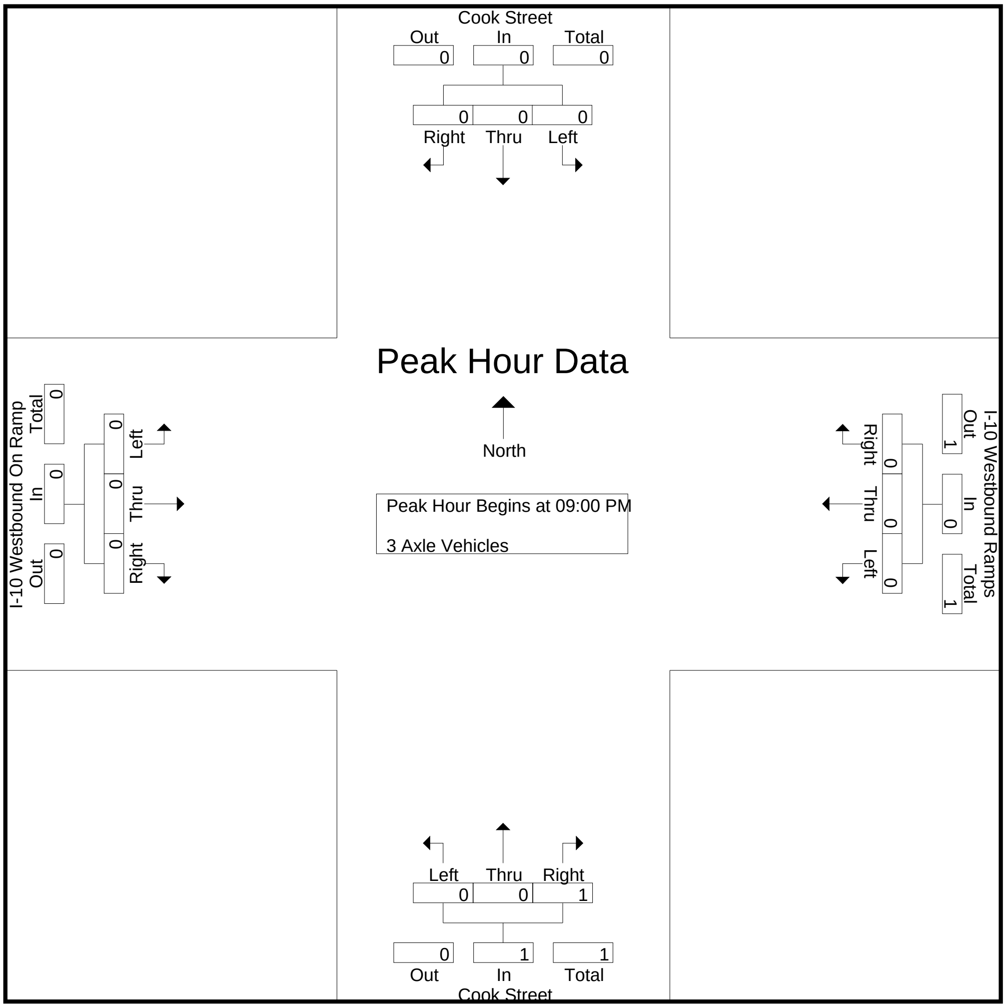
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

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County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
10:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	1	1	0	2	0	0	1	1	0	0	0	0	3
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	2	0	0	1	1	0	0	0	0	3
Grand Total	0	0	0	0	2	2	0	4	0	0	2	2	0	0	0	0	6
Apprch %	0	0	0		50	50	0		0	0	100		0	0	0		
Total %	0	0	0	0	33.3	33.3	0	66.7	0	0	33.3	33.3	0	0	0	0	

	Cook Street Southbound				I-10 Westbound Ramps Westbound				Cook Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	**1**
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000	.500

Counts Unlimited
PO Box 1178
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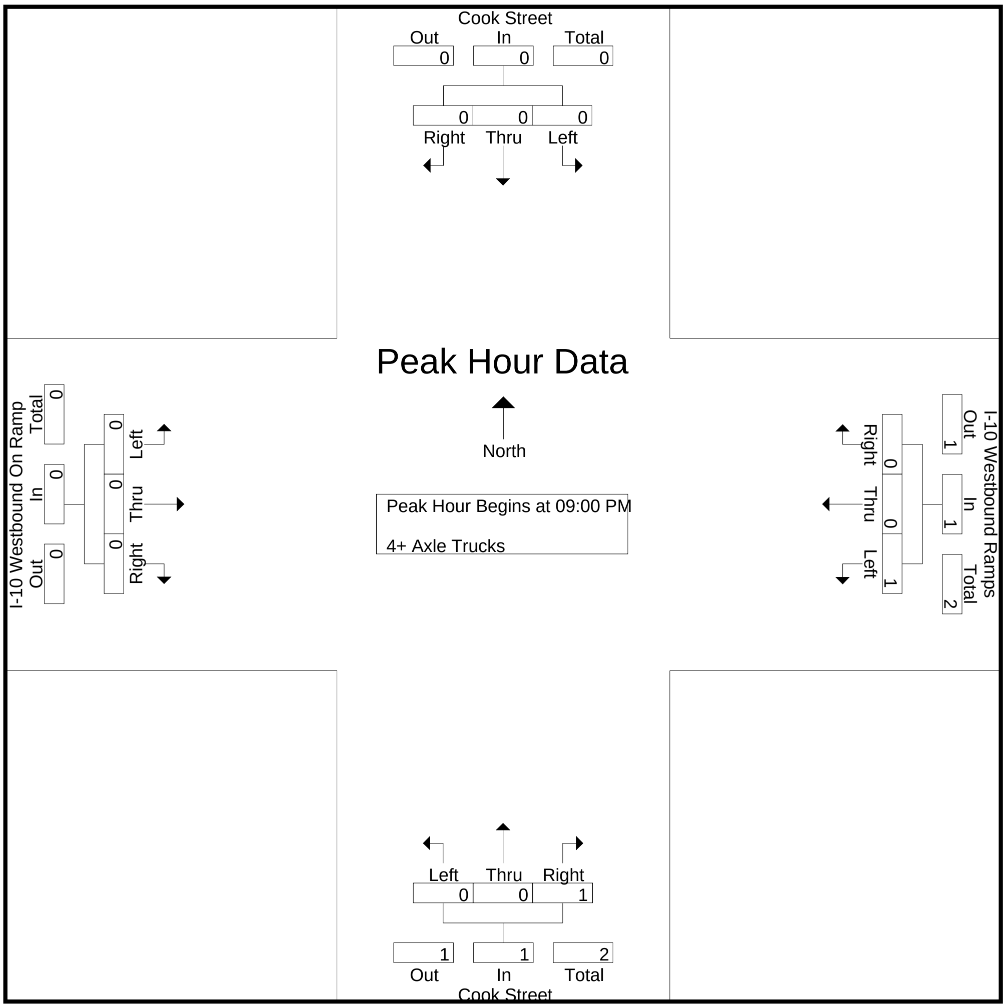
(951) 268-6268

County of Riverside
N/S: Cook Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : 06_CRV_Cook_10W WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000

Counts Unlimited
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City of Palm Desert
N/S: Cook Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 05_PLD_Cook_10E Thurs
Site Code : 05118939
Start Date : 1/10/2019

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound					I-10 Eastbound On Ramp Westbound					Cook Street Northbound					I-10 Eastbound Off Ramp Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	13	141	0	0	154	0	0	0	0	0	0	224	164	8	388	24	1	124	69	149	77	691	768
03:15 PM	6	155	0	0	161	0	0	0	0	0	0	207	161	15	368	13	0	129	80	142	95	671	766
03:30 PM	14	154	0	0	168	0	0	0	0	0	0	216	156	9	372	13	0	123	71	136	80	676	756
03:45 PM	13	161	0	0	174	0	0	0	0	0	0	240	168	13	408	12	0	146	92	158	105	740	845
Total	46	611	0	0	657	0	0	0	0	0	0	887	649	45	1536	62	1	522	312	585	357	2778	3135
04:00 PM	5	156	0	0	161	0	0	0	0	0	0	228	137	6	365	8	0	104	62	112	68	638	706
04:15 PM	12	129	0	0	141	0	0	0	0	0	0	225	165	13	390	13	0	126	77	139	90	670	760
04:30 PM	18	149	0	0	167	0	0	0	0	0	0	215	147	9	362	21	1	121	75	143	84	672	756
04:45 PM	13	150	0	0	163	0	0	0	0	0	0	252	172	12	424	8	0	114	61	122	73	709	782
Total	48	584	0	0	632	0	0	0	0	0	0	920	621	40	1541	50	1	465	275	516	315	2689	3004
05:00 PM	13	157	0	0	170	0	0	0	0	0	0	237	212	15	449	14	1	127	68	142	83	761	844
05:15 PM	21	155	0	0	176	0	0	0	0	0	0	257	191	12	448	15	0	115	75	130	87	754	841
05:30 PM	8	166	0	0	174	0	0	0	0	0	0	201	163	11	364	16	0	101	48	117	59	655	714
05:45 PM	8	141	0	0	149	0	0	0	0	0	0	148	165	5	313	10	0	95	59	105	64	567	631
Total	50	619	0	0	669	0	0	0	0	0	0	843	731	43	1574	55	1	438	250	494	293	2737	3030
06:00 PM	12	77	0	0	89	0	0	0	0	0	0	136	94	4	230	8	0	70	47	78	51	397	448
06:15 PM	4	85	0	0	89	0	0	0	0	0	0	85	77	4	162	10	0	65	39	75	43	326	369
06:30 PM	8	78	0	0	86	0	0	0	0	0	0	93	81	1	174	6	0	63	51	69	52	329	381
06:45 PM	15	61	0	0	76	0	0	0	0	0	0	69	71	3	140	6	0	58	28	64	31	280	311
Total	39	301	0	0	340	0	0	0	0	0	0	383	323	12	706	30	0	256	165	286	177	1332	1509
Grand Total	183	2115	0	0	2298	0	0	0	0	0	0	3033	2324	140	5357	197	3	1681	1002	1881	1142	9536	10678
Apprch %	8	92	0			0	0	0			0	56.6	43.4			10.5	0.2	89.4					
Total %	1.9	22.2	0		24.1	0	0	0		0	0	31.8	24.4		56.2	2.1	0	17.6		19.7	10.7	89.3	
Passenger Vehicles	182	2066	0		2248	0	0	0		0	0	2918	2279		5335	188	3	1597		2738	0	0	10321
% Passenger Vehicles	99.5	97.7	0	0	97.8	0	0	0	0	0	0	96.2	98.1	98.6	97.1	95.4	100	95	94.8	95	0	0	96.7
Large 2 Axle Vehicles	1	36	0		37	0	0	0		0	0	97	39		138	8	0	46		82	0	0	257
% Large 2 Axle Vehicles	0.5	1.7	0	0	1.6	0	0	0	0	0	0	3.2	1.7	1.4	2.5	4.1	0	2.7	2.8	2.8	0	0	2.4
3 Axle Vehicles	0	9	0		9	0	0	0		0	0	12	5		17	1	0	33		55	0	0	81
% 3 Axle Vehicles	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0.2	0	0.3	0.5	0	2	2.1	1.9	0	0	0.8
4+ Axle Trucks	0	4	0		4	0	0	0		0	0	6	1		7	0	0	5		8	0	0	19
% 4+ Axle Trucks	0	0.2	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.3	0.3	0.3	0	0	0.2

Counts Unlimited
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County of Riverside
N/S: Cook Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	28	0	28	0	0	0	0	0	30	26	56	4	0	32	36	120
09:15 PM	0	28	0	28	0	0	0	0	0	31	25	56	3	0	27	30	114
09:30 PM	1	17	0	18	0	0	0	0	0	21	30	51	2	1	30	33	102
09:45 PM	0	25	0	25	0	0	0	0	0	19	20	39	2	0	35	37	101
Total	1	98	0	99	0	0	0	0	0	101	101	202	11	1	124	136	437
10:00 PM	1	18	0	19	0	0	0	0	0	30	17	47	0	0	21	21	87
10:15 PM	2	14	0	16	0	0	0	0	0	19	17	36	1	0	23	24	76
10:30 PM	0	15	0	15	0	0	0	0	0	11	20	31	1	0	24	25	71
10:45 PM	1	17	0	18	0	0	0	0	0	13	12	25	1	1	27	29	72
Total	4	64	0	68	0	0	0	0	0	73	66	139	3	1	95	99	306
11:00 PM	1	10	0	11	0	0	0	0	0	20	12	32	1	0	17	18	61
11:15 PM	0	8	0	8	0	0	0	0	0	14	8	22	0	1	15	16	46
11:30 PM	3	11	0	14	0	0	0	0	0	11	8	19	0	1	11	12	45
11:45 PM	0	9	0	9	0	0	0	0	0	9	12	21	1	0	21	22	52
Total	4	38	0	42	0	0	0	0	0	54	40	94	2	2	64	68	204
Grand Total	9	200	0	209	0	0	0	0	0	228	207	435	16	4	283	303	947
Apprch %	4.3	95.7	0		0	0	0		0	52.4	47.6		5.3	1.3	93.4		
Total %	1	21.1	0	22.1	0	0	0	0	0	24.1	21.9	45.9	1.7	0.4	29.9	32	
Passenger Vehicles	9	197	0	206	0	0	0	0	0	224	203	427	16	1	279	296	929
% Passenger Vehicles	100	98.5	0	98.6	0	0	0	0	0	98.2	98.1	98.2	100	25	98.6	97.7	98.1
Large 2 Axle Vehicles	0	2	0	2	0	0	0	0	0	2	1	3	0	1	0	1	6
% Large 2 Axle Vehicles	0	1	0	1	0	0	0	0	0	0.9	0.5	0.7	0	25	0	0.3	0.6
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	1	0	1	0	0	0	0	0	2	3	5	0	2	4	6	12
% 4+ Axle Trucks	0	0.5	0	0.5	0	0	0	0	0	0.9	1.4	1.1	0	50	1.4	2	1.3

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	**28**	0	**28**	0	0	0	0	0	30	26	**56**	**4**	0	32	36	**120**
09:15 PM	0	28	0	28	0	0	0	0	0	**31**	25	56	3	0	27	30	114
09:30 PM	**1**	17	0	18	0	0	0	0	0	21	**30**	51	2	**1**	30	33	102
09:45 PM	0	25	0	25	0	0	0	0	0	19	20	39	2	0	**35**	**37**	101
Total Volume	1	98	0	99	0	0	0	0	0	101	101	202	11	1	124	136	437
% App. Total	1	99	0		0	0	0		0	50	50		8.1	0.7	91.2		
PHF	.250	.875	.000	.884	.000	.000	.000	.000	.000	.815	.842	.902	.688	.250	.886	.919	.910

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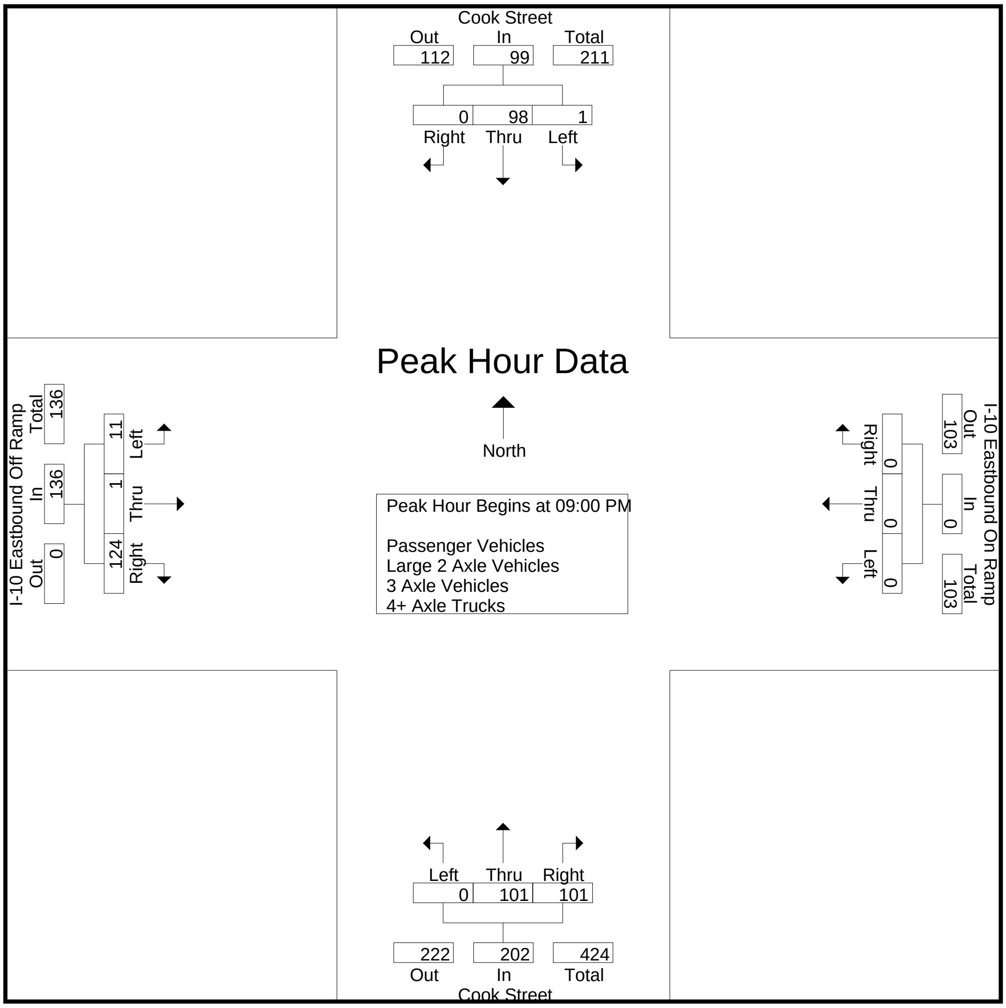
County of Riverside
N/S: Cook Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	**28**	0	**28**	0	0	0	0	0	30	26	**56**	**4**	0	32	36
+15 mins.	0	28	0	28	0	0	0	0	0	**31**	25	56	3	0	27	30
+30 mins.	**1**	17	0	18	0	0	0	0	0	21	**30**	51	2	**1**	30	33
+45 mins.	0	25	0	25	0	0	0	0	0	19	20	39	2	0	**35**	**37**
Total Volume	1	98	0	99	0	0	0	0	0	101	101	202	11	1	124	136
% App. Total	1	99	0		0	0	0		0	50	50		8.1	0.7	91.2	
PHF	.250	.875	.000	.884	.000	.000	.000	.000	.000	.815	.842	.902	.688	.250	.886	.919

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File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
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Groups Printed- Passenger Vehicles

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	27	0	27	0	0	0	0	0	30	25	55	4	0	32	36	118
09:15 PM	0	28	0	28	0	0	0	0	0	30	24	54	3	0	27	30	112
09:30 PM	1	17	0	18	0	0	0	0	0	20	30	50	2	0	30	32	100
09:45 PM	0	25	0	25	0	0	0	0	0	19	20	39	2	0	33	35	99
Total	1	97	0	98	0	0	0	0	0	99	99	198	11	0	122	133	429
10:00 PM	1	18	0	19	0	0	0	0	0	30	16	46	0	0	21	21	86
10:15 PM	2	14	0	16	0	0	0	0	0	19	16	35	1	0	23	24	75
10:30 PM	0	15	0	15	0	0	0	0	0	11	20	31	1	0	24	25	71
10:45 PM	1	15	0	16	0	0	0	0	0	13	12	25	1	0	26	27	68
Total	4	62	0	66	0	0	0	0	0	73	64	137	3	0	94	97	300
11:00 PM	1	10	0	11	0	0	0	0	0	19	12	31	1	0	17	18	60
11:15 PM	0	8	0	8	0	0	0	0	0	13	8	21	0	1	15	16	45
11:30 PM	3	11	0	14	0	0	0	0	0	11	8	19	0	0	11	11	44
11:45 PM	0	9	0	9	0	0	0	0	0	9	12	21	1	0	20	21	51
Total	4	38	0	42	0	0	0	0	0	52	40	92	2	1	63	66	200
Grand Total	9	197	0	206	0	0	0	0	0	224	203	427	16	1	279	296	929
Apprch %	4.4	95.6	0		0	0	0		0	52.5	47.5		5.4	0.3	94.3		
Total %	1	21.2	0	22.2	0	0	0	0	0	24.1	21.9	46	1.7	0.1	30	31.9	

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	27	0	27	0	0	0	0	0	**30**	25	**55**	**4**	0	32	**36**	**118**
09:15 PM	0	**28**	0	**28**	0	0	0	0	0	30	24	54	3	0	27	30	112
09:30 PM	**1**	17	0	18	0	0	0	0	0	20	**30**	50	2	0	30	32	100
09:45 PM	0	25	0	25	0	0	0	0	0	19	20	39	2	0	**33**	35	99
Total Volume	1	97	0	98	0	0	0	0	0	99	99	198	11	0	122	133	429
% App. Total	1	99	0		0	0	0		0	50	50		8.3	0	91.7		
PHF	.250	.866	.000	.875	.000	.000	.000	.000	.000	.825	.825	.900	.688	.000	.924	.924	.909

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County of Riverside
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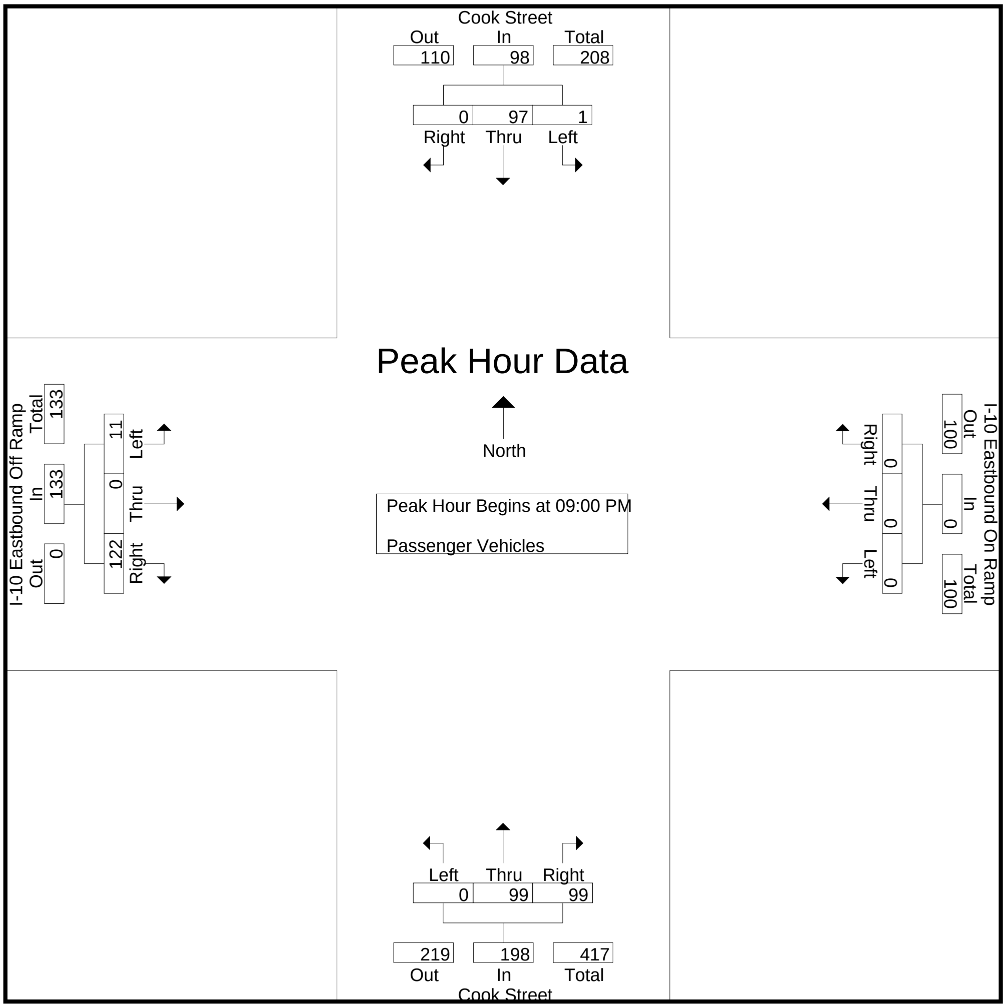
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	27	0	27	0	0	0	0	0	**30**	25	**55**	**4**	0	32	**36**
+15 mins.	0	**28**	0	**28**	0	0	0	0	0	30	24	54	3	0	27	30
+30 mins.	**1**	17	0	18	0	0	0	0	0	20	**30**	50	2	0	30	32
+45 mins.	0	25	0	25	0	0	0	0	0	19	20	39	2	0	**33**	35
Total Volume	1	97	0	98	0	0	0	0	0	99	99	198	11	0	122	133
% App. Total	1	99	0		0	0	0		0	50	50		8.3	0	91.7	
PHF	.250	.866	.000	.875	.000	.000	.000	.000	.000	.825	.825	.900	.688	.000	.924	.924

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County of Riverside
N/S: Cook Street
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File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1	3
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	2	0	2	0	0	0	0	0	2	1	3	0	1	0	1	6
Apprch %	0	100	0		0	0	0		0	66.7	33.3		0	100	0		
Total %	0	33.3	0	33.3	0	0	0	0	0	33.3	16.7	50	0	16.7	0	16.7	

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	0	0	0	0	**2**
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1	3
% App. Total	0	0	0		0	0	0		0	50	50		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.250	.000	.250	.375

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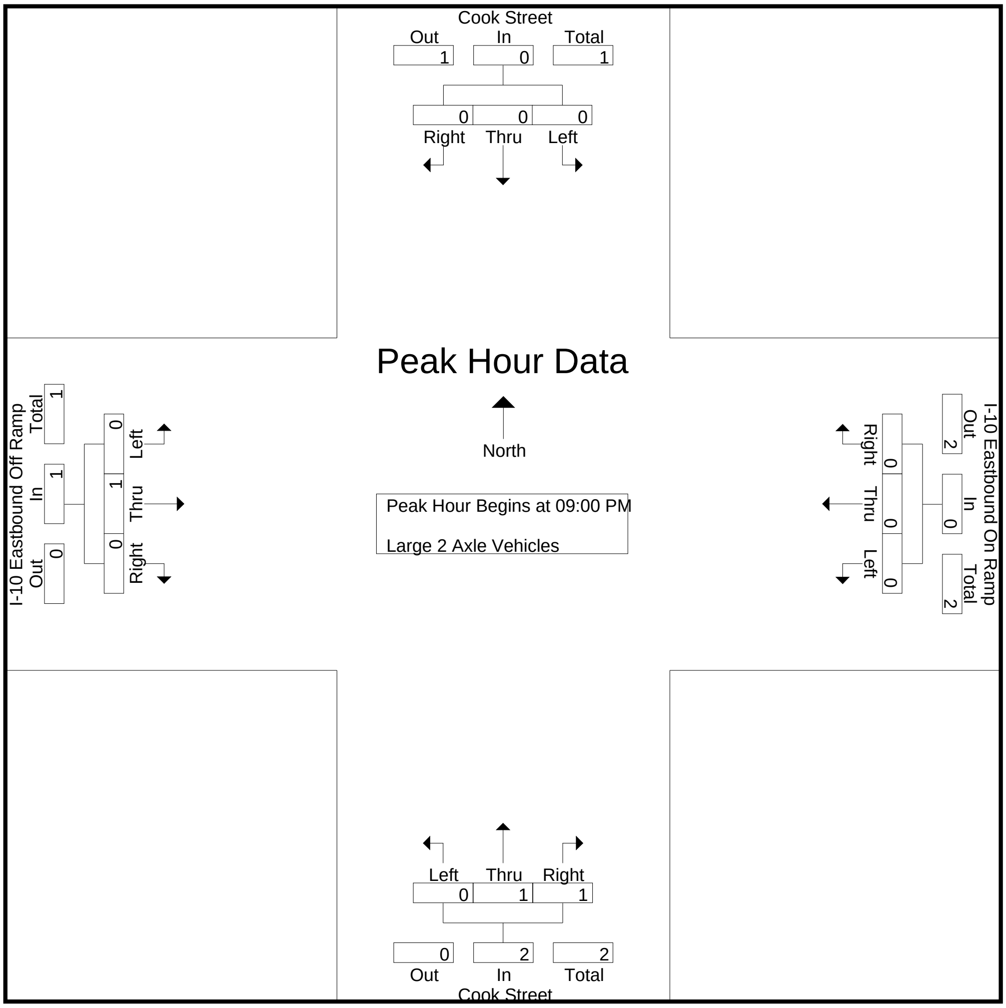

Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1
% App. Total	0	0	0		0	0	0		0	50	50		0	100	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.250	.000	.250

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N/S: Cook Street
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File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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County of Riverside
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File Name : 05_CRV_Cook_10E WLN
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Start Date : 10/28/2020
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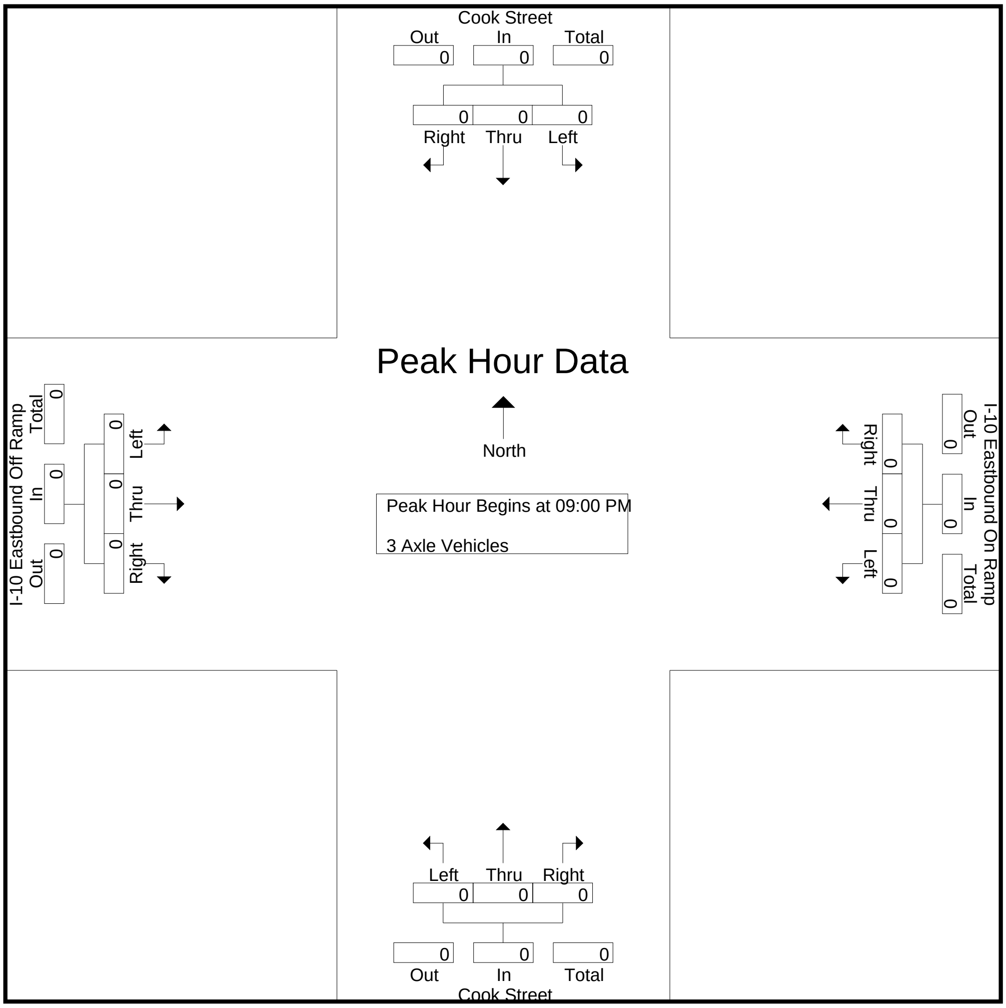

Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	1	0	1	0	0	0	0	0	1	1	2	0	0	2	2	5
10:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
10:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Total	0	0	0	0	0	0	0	0	0	0	2	2	0	1	1	2	4
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	2	3
Grand Total	0	1	0	1	0	0	0	0	0	2	3	5	0	2	4	6	12
Apprch %	0	100	0		0	0	0		0	40	60		0	33.3	66.7		
Total %	0	8.3	0	8.3	0	0	0	0	0	16.7	25	41.7	0	16.7	33.3	50	

	Cook Street Southbound				I-10 Eastbound On Ramp Westbound				Cook Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**2**
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**	2
Total Volume	0	1	0	1	0	0	0	0	0	1	1	2	0	0	2	2	5
% App. Total	0	100	0		0	0	0		0	50	50		0	0	100		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.250	.625

Counts Unlimited
PO Box 1178
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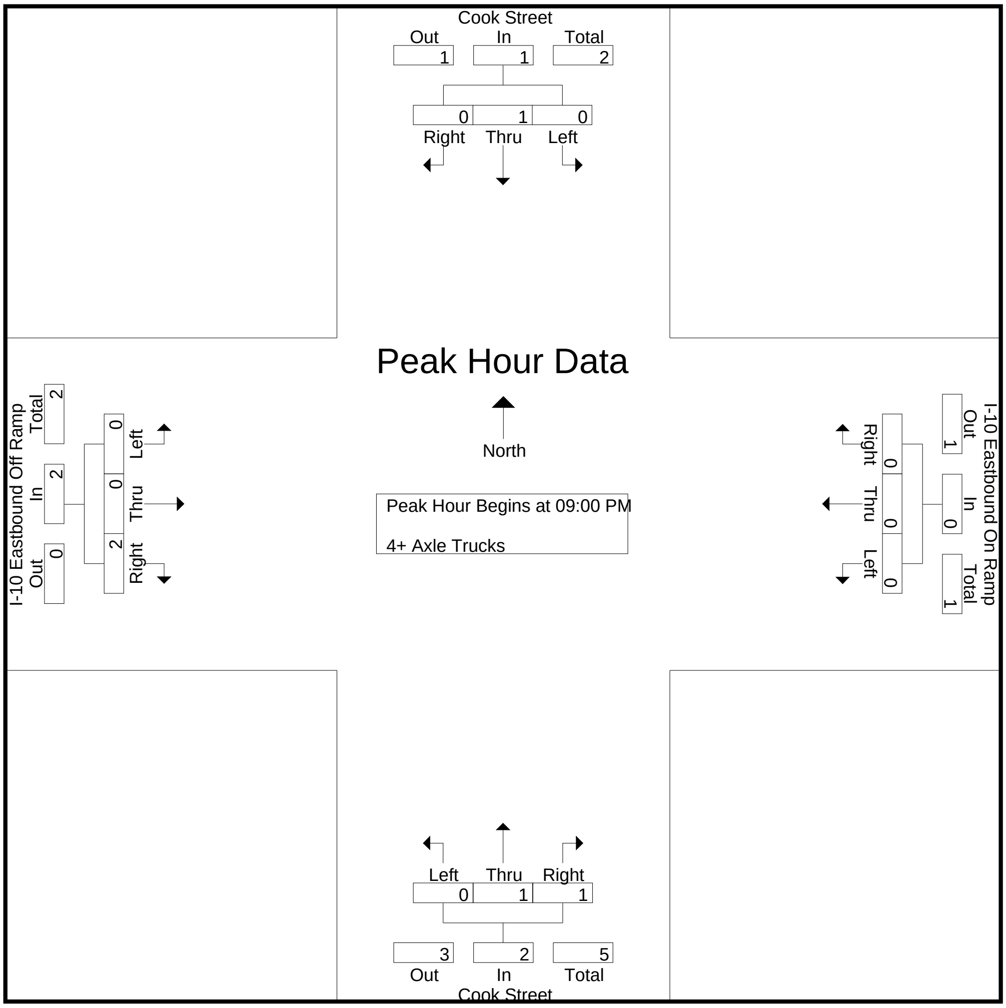
County of Riverside
N/S: Cook Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 05_CRV_Cook_10E WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**
Total Volume	0	1	0	1	0	0	0	0	0	1	1	2	0	0	2	2
% App. Total	0	100	0		0	0	0		0	50	50		0	0	100	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.250

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City of Palm Desert
N/S: Cook Street
E/W: Gerald Ford Drive
Weather: Clear

File Name : 06_PLD_Cook_Gerald Ford Thurs
Site Code : 05118939
Start Date : 1/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound					Gerald Ford Drive Westbound					Cook Street Northbound					Gerald Ford Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	38	202	33	11	273	6	46	33	17	85	65	267	7	2	339	88	44	32	1	164	31	861	892
03:15 PM	49	196	51	19	296	11	40	37	18	88	68	251	8	4	327	97	37	18	0	152	41	863	904
03:30 PM	36	174	41	24	251	10	39	35	25	84	52	225	11	2	288	84	39	11	1	134	52	757	809
03:45 PM	50	218	47	15	315	11	39	40	20	90	54	258	11	2	323	98	77	19	2	194	39	922	961
Total	173	790	172	69	1135	38	164	145	80	347	239	1001	37	10	1277	367	197	80	4	644	163	3403	3566
04:00 PM	42	158	39	14	239	24	61	37	22	122	33	240	6	3	279	84	54	21	1	159	40	799	839
04:15 PM	41	176	39	20	256	40	56	47	20	143	57	236	11	5	304	79	59	31	0	169	45	872	917
04:30 PM	46	181	42	20	269	8	53	42	22	103	46	240	4	2	290	91	57	24	0	172	44	834	878
04:45 PM	50	167	42	22	259	13	45	32	21	90	43	230	9	6	282	121	64	20	0	205	49	836	885
Total	179	682	162	76	1023	85	215	158	85	458	179	946	30	16	1155	375	234	96	1	705	178	3341	3519
05:00 PM	50	181	39	16	270	18	44	41	23	103	41	261	5	1	307	134	69	31	4	234	44	914	958
05:15 PM	37	170	43	16	250	10	36	36	21	82	49	289	7	3	345	114	62	24	0	200	40	877	917
05:30 PM	47	178	36	11	261	11	35	33	20	79	26	216	6	3	248	93	44	27	0	164	34	752	786
05:45 PM	32	165	36	11	233	9	37	19	10	65	48	197	3	1	248	73	42	23	1	138	23	684	707
Total	166	694	154	54	1014	48	152	129	74	329	164	963	21	8	1148	414	217	105	5	736	141	3227	3368
06:00 PM	30	116	28	15	174	7	30	17	10	54	39	145	5	0	189	55	35	17	0	107	25	524	549
06:15 PM	28	97	23	10	148	9	23	12	9	44	23	84	6	3	113	60	23	14	1	97	23	402	425
06:30 PM	25	96	16	5	137	12	19	20	16	51	29	99	2	1	130	47	32	14	4	93	26	411	437
06:45 PM	30	78	13	5	121	6	15	8	4	29	22	75	1	1	98	47	25	13	1	85	11	333	344
Total	113	387	80	35	580	34	87	57	39	178	113	403	14	5	530	209	115	58	6	382	85	1670	1755
Grand Total	631	2553	568	234	3752	205	618	489	278	1312	695	3313	102	39	4110	1365	763	339	16	2467	567	11641	12208
Apprch %	16.8	68	15.1			15.6	47.1	37.3			16.9	80.6	2.5			55.3	30.9	13.7					
Total %	5.4	21.9	4.9		32.2	1.8	5.3	4.2		11.3	6	28.5	0.9		35.3	11.7	6.6	2.9		21.2	4.6	95.4	
Passenger Vehicles	620	2470	559		3878	203	604	472		1550	688	3234	100		4060	1348	755	335		2454	0	0	11942
% Passenger Vehicles	98.3	96.7	98.4	97.9	97.3	99	97.7	96.5	97.5	97.5	99	97.6	98	97.4	97.9	98.8	99	98.8	100	98.8	0	0	97.8
Large 2 Axle Vehicles	10	42	7		64	2	14	14		36	6	57	2		66	15	7	3		25	0	0	191
% Large 2 Axle Vehicles	1.6	1.6	1.2	2.1	1.6	1	2.3	2.9	2.2	2.3	0.9	1.7	2	2.6	1.6	1.1	0.9	0.9	0	1	0	0	1.6
3 Axle Vehicles	0	34	0		34	0	0	2		3	0	14	0		14	2	1	0		3	0	0	54
% 3 Axle Vehicles	0	1.3	0	0	0.9	0	0	0.4	0.4	0.2	0	0.4	0	0	0.3	0.1	0.1	0	0	0.1	0	0	0.4
4+ Axle Trucks	1	7	2		10	0	0	1		1	1	8	0		9	0	0	1		1	0	0	21
% 4+ Axle Trucks	0.2	0.3	0.4	0	0.3	0	0	0.2	0	0.1	0.1	0.2	0	0	0.2	0	0	0.3	0	0	0	0	0.2

Counts Unlimited
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City of Palm Desert
N/S: Cook Street
E/W: Gerald Ford Drive
Weather: Clear

File Name : 07_PLD_Cook_Gerald Ford WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Cook Street Southbound				Gerald Ford Drive Westbound				Cook Street Northbound				Gerald Ford Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	12	41	12	65	5	5	4	14	7	36	1	44	21	7	5	33	156
09:15 PM	20	30	10	60	4	5	6	15	6	39	1	46	8	7	4	19	140
09:30 PM	7	32	7	46	2	2	6	10	5	24	0	29	16	5	3	24	109
09:45 PM	12	35	9	56	1	3	1	5	5	18	0	23	21	13	4	38	122
Total	51	138	38	227	12	15	17	44	23	117	2	142	66	32	16	114	527
10:00 PM	11	30	4	45	1	4	5	10	4	28	0	32	7	3	1	11	98
10:15 PM	3	31	5	39	3	4	0	7	4	33	2	39	10	2	1	13	98
10:30 PM	7	30	7	44	3	2	2	7	7	21	0	28	6	2	0	8	87
10:45 PM	5	34	5	44	1	4	1	6	5	19	0	24	6	4	4	14	88
Total	26	125	21	172	8	14	8	30	20	101	2	123	29	11	6	46	371
11:00 PM	8	24	2	34	0	1	0	1	1	21	2	24	4	4	2	10	69
11:15 PM	4	16	4	24	3	0	2	5	0	15	0	15	4	2	1	7	51
11:30 PM	7	14	4	25	1	2	1	4	2	15	1	18	7	6	2	15	62
11:45 PM	9	18	2	29	0	1	1	2	4	8	0	12	6	1	3	10	53
Total	28	72	12	112	4	4	4	12	7	59	3	69	21	13	8	42	235
Grand Total	105	335	71	511	24	33	29	86	50	277	7	334	116	56	30	202	1133
Apprch %	20.5	65.6	13.9		27.9	38.4	33.7		15	82.9	2.1		57.4	27.7	14.9		
Total %	9.3	29.6	6.3	45.1	2.1	2.9	2.6	7.6	4.4	24.4	0.6	29.5	10.2	4.9	2.6	17.8	

	Cook Street Southbound				Gerald Ford Drive Westbound				Cook Street Northbound				Gerald Ford Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	12	**41**	**12**	**65**	**5**	**5**	4	14	**7**	36	**1**	44	**21**	7	**5**	33	**156**
09:15 PM	**20**	30	10	60	4	5	**6**	**15**	6	**39**	1	**46**	8	7	4	19	140
09:30 PM	7	32	7	46	2	2	6	10	5	24	0	29	16	5	3	24	109
09:45 PM	12	35	9	56	1	3	1	5	5	18	0	23	21	**13**	4	**38**	122
Total Volume	51	138	38	227	12	15	17	44	23	117	2	142	66	32	16	114	527
% App. Total	22.5	60.8	16.7		27.3	34.1	38.6		16.2	82.4	1.4		57.9	28.1	14		
PHF	.638	.841	.792	.873	.600	.750	.708	.733	.821	.750	.500	.772	.786	.615	.800	.750	.845

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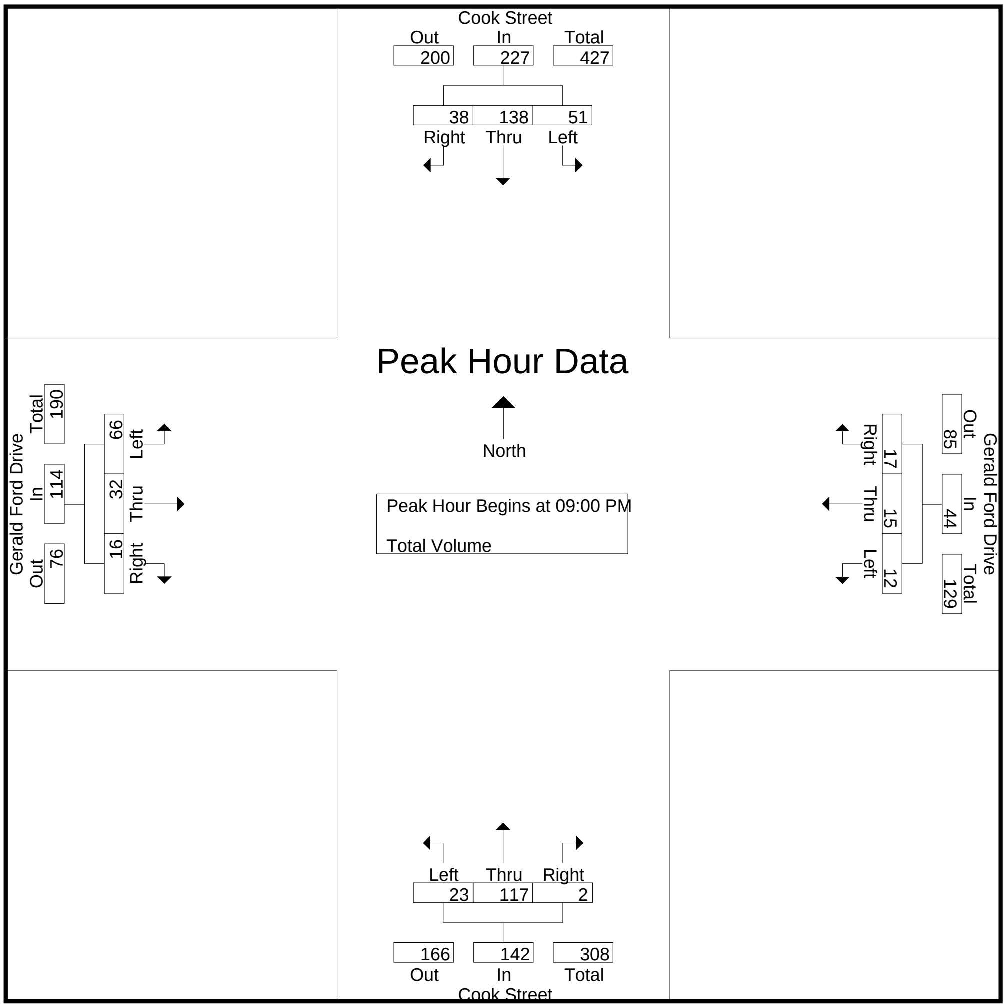
City of Palm Desert	File Name : 07_PLD_Cook_Gerald Ford WLN
N/S: Cook Street	Site Code : 12820410
E/W: Gerald Ford Drive	Start Date : 10/28/2020
Weather: Clear	Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	12	**41**	**12**	**65**	**5**	**5**	4	14	**7**	36	**1**	44	**21**	7	**5**	33
+15 mins.	**20**	30	10	60	4	5	**6**	**15**	6	**39**	1	**46**	8	7	4	19
+30 mins.	7	32	7	46	2	2	6	10	5	24	0	29	16	5	3	24
+45 mins.	12	35	9	56	1	3	1	5	5	18	0	23	21	**13**	4	**38**
Total Volume	51	138	38	227	12	15	17	44	23	117	2	142	66	32	16	114
% App. Total	22.5	60.8	16.7		27.3	34.1	38.6		16.2	82.4	1.4		57.9	28.1	14	
PHF	.638	.841	.792	.873	.600	.750	.708	.733	.821	.750	.500	.772	.786	.615	.800	.750

Counts Unlimited
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City of Palm Desert
N/S: Cook Street
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 07_PLD_Cook_Frank Sinatra Thurs
Site Code : 05118939
Start Date : 1/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound					Frank Sinatra Drive Westbound					Cook Street Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	14	187	46	18	247	12	38	13	7	63	30	243	15	3	288	74	63	37	23	174	51	772	823
03:15 PM	13	215	36	18	264	9	32	12	7	53	33	237	17	1	287	64	61	38	24	163	50	767	817
03:30 PM	7	174	39	19	220	11	38	15	7	64	35	239	15	2	289	78	63	38	25	179	53	752	805
03:45 PM	24	197	35	18	256	7	39	13	8	59	27	229	16	5	272	64	64	34	21	162	52	749	801
Total	58	773	156	73	987	39	147	53	29	239	125	948	63	11	1136	280	251	147	93	678	206	3040	3246
04:00 PM	13	184	56	15	253	7	38	4	1	49	37	248	10	0	295	53	48	41	29	142	45	739	784
04:15 PM	13	179	37	16	229	14	37	16	8	67	24	208	17	4	249	69	68	34	18	171	46	716	762
04:30 PM	10	175	36	19	221	8	32	11	8	51	22	202	10	3	234	62	55	25	16	142	46	648	694
04:45 PM	11	168	37	17	216	14	31	14	9	59	41	222	16	2	279	63	57	36	27	156	55	710	765
Total	47	706	166	67	919	43	138	45	26	226	124	880	53	9	1057	247	228	136	90	611	192	2813	3005
05:00 PM	21	172	47	16	240	9	37	13	11	59	34	194	17	2	245	81	60	36	26	177	55	721	776
05:15 PM	22	156	31	15	209	10	43	13	9	66	39	267	18	5	324	67	78	26	21	171	50	770	820
05:30 PM	11	138	32	12	181	11	41	8	5	60	28	166	18	2	212	52	62	24	12	138	31	591	622
05:45 PM	14	152	31	13	197	11	31	12	11	54	20	160	17	2	197	48	60	30	14	138	40	586	626
Total	68	618	141	56	827	41	152	46	36	239	121	787	70	11	978	248	260	116	73	624	176	2668	2844
06:00 PM	12	102	25	12	139	13	17	6	3	36	19	143	4	2	166	21	38	16	12	75	29	416	445
06:15 PM	15	99	24	12	138	3	19	13	7	35	23	85	8	4	116	30	36	14	8	80	31	369	400
06:30 PM	15	99	26	17	140	4	20	4	1	28	23	96	6	3	125	27	25	11	7	63	28	356	384
06:45 PM	11	89	19	8	119	8	20	2	1	30	7	75	6	1	88	17	24	8	5	49	15	286	301
Total	53	389	94	49	536	28	76	25	12	129	72	399	24	10	495	95	123	49	32	267	103	1427	1530
Grand Total	226	2486	557	245	3269	151	513	169	103	833	442	3014	210	41	3666	870	862	448	288	2180	677	9948	10625
Apprch %	6.9	76	17			18.1	61.6	20.3			12.1	82.2	5.7			39.9	39.5	20.6					
Total %	2.3	25	5.6		32.9	1.5	5.2	1.7		8.4	4.4	30.3	2.1		36.9	8.7	8.7	4.5		21.9	6.4	93.6	
Passenger Vehicles	224	2402	550		3419	150	505	166		923	436	2937	205		3618	859	852	441		2435	0	0	10395
% Passenger Vehicles	99.1	96.6	98.7	99.2	97.3	99.3	98.4	98.2	99	98.6	98.6	97.4	97.6	97.6	97.6	98.7	98.8	98.4	98.3	98.7	0	0	97.8
Large 2 Axle Vehicles	2	41	5		49	1	8	3		13	5	56	5		67	10	10	4		27	0	0	156
% Large 2 Axle Vehicles	0.9	1.6	0.9	0.4	1.4	0.7	1.6	1.8	1	1.4	1.1	1.9	2.4	2.4	1.8	1.1	1.2	0.9	1	1.1	0	0	1.5
3 Axle Vehicles	0	37	1		39	0	0	0		0	0	14	0		14	1	0	3		6	0	0	59
% 3 Axle Vehicles	0	1.5	0.2	0.4	1.1	0	0	0	0	0	0	0.5	0	0	0.4	0.1	0	0.7	0.7	0.2	0	0	0.6
4+ Axle Trucks	0	6	1		7	0	0	0		0	1	7	0		8	0	0	0		0	0	0	15
% 4+ Axle Trucks	0	0.2	0.2	0	0.2	0	0	0	0	0	0.2	0.2	0	0	0.2	0	0	0	0	0	0	0	0.1

3.1-301

Counts Unlimited
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City of Palm Desert
N/S: Cook Street
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 08_PLD_Cook_Frank WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Cook Street Southbound				Frank Sinatra Drive Westbound				Cook Street Northbound				Frank Sinatra Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	5	40	5	50	2	3	4	9	6	40	2	48	5	10	3	18	125
09:15 PM	1	28	8	37	0	1	1	2	7	30	3	40	14	13	2	29	108
09:30 PM	2	32	7	41	3	3	1	7	4	15	1	20	13	13	4	30	98
09:45 PM	5	27	4	36	1	5	0	6	1	21	1	23	6	6	9	21	86
Total	13	127	24	164	6	12	6	24	18	106	7	131	38	42	18	98	417
10:00 PM	1	22	5	28	0	6	1	7	3	24	2	29	6	8	5	19	83
10:15 PM	2	26	7	35	0	0	3	3	5	30	0	35	8	3	3	14	87
10:30 PM	2	24	9	35	0	3	1	4	1	20	5	26	15	8	3	26	91
10:45 PM	1	30	7	38	0	2	0	2	1	16	0	17	5	2	4	11	68
Total	6	102	28	136	0	11	5	16	10	90	7	107	34	21	15	70	329
11:00 PM	0	25	1	26	1	1	0	2	1	18	0	19	4	7	2	13	60
11:15 PM	0	19	1	20	1	2	0	3	4	14	1	19	2	2	1	5	47
11:30 PM	0	11	2	13	0	3	1	4	4	13	0	17	4	3	2	9	43
11:45 PM	1	20	4	25	1	1	0	2	3	10	0	13	2	1	2	5	45
Total	1	75	8	84	3	7	1	11	12	55	1	68	12	13	7	32	195
Grand Total	20	304	60	384	9	30	12	51	40	251	15	306	84	76	40	200	941
Apprch %	5.2	79.2	15.6		17.6	58.8	23.5		13.1	82	4.9		42	38	20		
Total %	2.1	32.3	6.4	40.8	1	3.2	1.3	5.4	4.3	26.7	1.6	32.5	8.9	8.1	4.3	21.3	

	Cook Street Southbound				Frank Sinatra Drive Westbound				Cook Street Northbound				Frank Sinatra Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	**5**	**40**	5	**50**	2	3	**4**	**9**	6	**40**	2	**48**	5	10	3	18	**125**
09:15 PM	1	28	**8**	37	0	1	1	2	**7**	30	**3**	40	**14**	**13**	2	29	108
09:30 PM	2	32	7	41	**3**	3	1	7	4	15	1	20	13	13	4	**30**	98
09:45 PM	5	27	4	36	1	**5**	0	6	1	21	1	23	6	6	**9**	21	86
Total Volume	13	127	24	164	6	12	6	24	18	106	7	131	38	42	18	98	417
% App. Total	7.9	77.4	14.6		25	50	25		13.7	80.9	5.3		38.8	42.9	18.4		
PHF	.650	.794	.750	.820	.500	.600	.375	.667	.643	.663	.583	.682	.679	.808	.500	.817	.834

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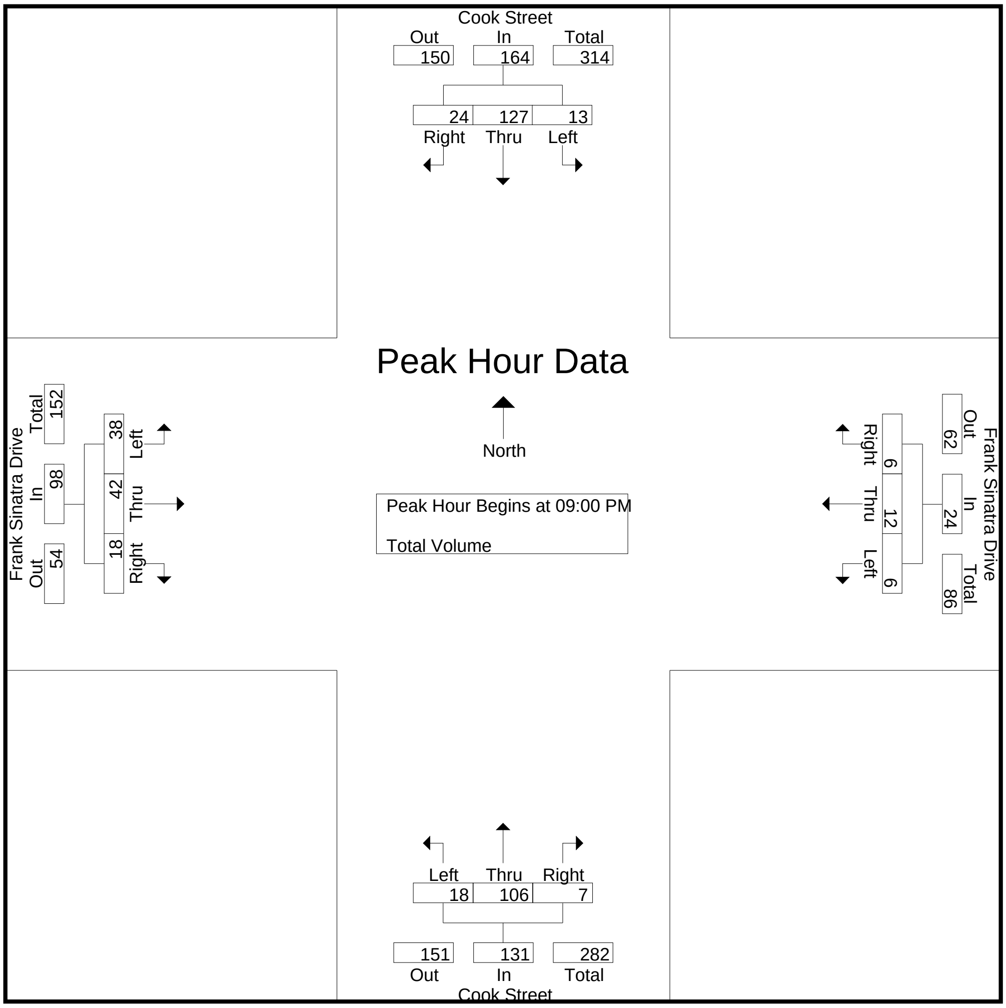
City of Palm Desert
N/S: Cook Street
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 08_PLD_Cook_Frank WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:15 PM			
+0 mins.	**5**	**40**	5	**50**	2	3	**4**	**9**	6	**40**	2	**48**	**14**	**13**	2	29
+15 mins.	1	28	**8**	37	0	1	1	2	**7**	30	**3**	40	13	13	4	**30**
+30 mins.	2	32	7	41	**3**	3	1	7	4	15	1	20	6	6	**9**	21
+45 mins.	5	27	4	36	1	**5**	0	6	1	21	1	23	6	8	5	19
Total Volume	13	127	24	164	6	12	6	24	18	106	7	131	39	40	20	99
% App. Total	7.9	77.4	14.6		25	50	25		13.7	80.9	5.3		39.4	40.4	20.2	
PHF	.650	.794	.750	.820	.500	.600	.375	.667	.643	.663	.583	.682	.696	.769	.556	.825

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City of Palm Desert
N/S: Cook Street
E/W: Country Club Drive
Weather: Clear

File Name : 09_PLD_Cook_Country Club Thurs
Site Code : 05118939
Start Date : 1/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cook Street Southbound					Country Club Drive Westbound					Cook Street Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	63	195	27	15	285	25	104	41	14	170	82	248	42	13	372	37	172	53	18	262	60	1089	1149
03:15 PM	68	180	28	11	276	35	128	39	14	202	56	202	35	10	293	38	180	59	23	277	58	1048	1106
03:30 PM	62	193	36	20	291	29	140	46	13	215	63	245	49	10	357	45	180	47	19	272	62	1135	1197
03:45 PM	55	183	28	18	266	34	104	36	16	174	47	210	44	20	301	33	178	69	20	280	74	1021	1095
Total	248	751	119	64	1118	123	476	162	57	761	248	905	170	53	1323	153	710	228	80	1091	254	4293	4547
04:00 PM	56	200	27	16	283	29	113	36	17	178	58	243	39	15	340	38	140	41	21	219	69	1020	1089
04:15 PM	56	183	28	13	267	32	118	28	12	178	51	208	28	11	287	18	143	38	12	199	48	931	979
04:30 PM	55	144	28	12	227	33	111	28	19	172	45	180	41	18	266	38	150	65	31	253	80	918	998
04:45 PM	48	155	28	10	231	26	100	31	10	157	58	226	43	14	327	41	160	45	23	246	57	961	1018
Total	215	682	111	51	1008	120	442	123	58	685	212	857	151	58	1220	135	593	189	87	917	254	3830	4084
05:00 PM	61	166	36	14	263	39	91	26	16	156	54	230	40	23	324	34	167	50	23	251	76	994	1070
05:15 PM	52	145	28	9	225	33	110	33	11	176	63	261	51	22	375	37	177	61	28	275	70	1051	1121
05:30 PM	56	135	31	14	222	28	97	18	11	143	53	131	22	9	206	33	146	43	15	222	49	793	842
05:45 PM	31	159	38	18	228	30	77	28	14	135	44	150	22	15	216	32	102	40	15	174	62	753	815
Total	200	605	133	55	938	130	375	105	52	610	214	772	135	69	1121	136	592	194	81	922	257	3591	3848
06:00 PM	38	107	18	6	163	17	77	23	14	117	24	131	28	8	183	25	101	36	24	162	52	625	677
06:15 PM	23	92	18	10	133	24	74	20	7	118	41	81	15	7	137	18	97	33	18	148	42	536	578
06:30 PM	27	103	9	6	139	23	83	22	9	128	35	91	13	8	139	16	77	24	16	117	39	523	562
06:45 PM	31	84	23	14	138	14	47	11	4	72	23	78	26	9	127	17	82	24	15	123	42	460	502
Total	119	386	68	36	573	78	281	76	34	435	123	381	82	32	586	76	357	117	73	550	175	2144	2319
Grand Total	782	2424	431	206	3637	451	1574	466	201	2491	797	2915	538	212	4250	500	2252	728	321	3480	940	13858	14798
Apprch %	21.5	66.6	11.9			18.1	63.2	18.7			18.8	68.6	12.7			14.4	64.7	20.9					
Total %	5.6	17.5	3.1		26.2	3.3	11.4	3.4		18	5.8	21	3.9		30.7	3.6	16.3	5.3		25.1	6.4	93.6	
Passenger Vehicles	774	2329	427		3736	447	1565	459		2671	783	2830	530		4352	495	2203	719		3737	0	0	14496
% Passenger Vehicles	99	96.1	99.1	100	97.2	99.1	99.4	98.5	99.5	99.2	98.2	97.1	98.5	98.6	97.5	99	97.8	98.8	99.7	98.3	0	0	98
Large 2 Axle Vehicles	7	50	1		58	3	9	7		20	12	59	6		79	4	40	6		51	0	0	208
% Large 2 Axle Vehicles	0.9	2.1	0.2	0	1.5	0.7	0.6	1.5	0.5	0.7	1.5	2	1.1	0.9	1.8	0.8	1.8	0.8	0.3	1.3	0	0	1.4
3 Axle Vehicles	1	38	2		41	1	0	0		1	1	12	0		13	1	0	3		4	0	0	59
% 3 Axle Vehicles	0.1	1.6	0.5	0	1.1	0.2	0	0	0	0	0.1	0.4	0	0	0.3	0.2	0	0.4	0	0.1	0	0	0.4
4+ Axle Trucks	0	7	1		8	0	0	0		0	1	14	2		18	0	9	0		9	0	0	35
% 4+ Axle Trucks	0	0.3	0.2	0	0.2	0	0	0	0	0	0.1	0.5	0.4	0.5	0.4	0	0.4	0	0	0.2	0	0	0.2

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City of Palm Desert
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E/W: Country Club Drive
Weather: Clear

File Name : 09_PLD_Cook_Country WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Cook Street Southbound				Country Club Drive Westbound				Cook Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	5	41	3	49	6	17	3	26	7	35	12	54	8	28	6	42	171
09:15 PM	4	29	1	34	8	15	3	26	8	34	2	44	3	19	9	31	135
09:30 PM	9	32	2	43	5	12	1	18	5	20	2	27	1	28	2	31	119
09:45 PM	2	37	2	41	1	12	3	16	8	18	4	30	2	18	2	22	109
Total	20	139	8	167	20	56	10	86	28	107	20	155	14	93	19	126	534
10:00 PM	4	29	3	36	5	17	2	24	7	26	1	34	1	17	3	21	115
10:15 PM	5	24	3	32	4	16	6	26	0	19	3	22	5	13	2	20	100
10:30 PM	3	24	3	30	2	8	3	13	6	22	3	31	2	10	5	17	91
10:45 PM	6	21	4	31	0	6	0	6	2	14	2	18	3	10	4	17	72
Total	18	98	13	129	11	47	11	69	15	81	9	105	11	50	14	75	378
11:00 PM	3	23	5	31	4	10	2	16	5	14	1	20	4	8	4	16	83
11:15 PM	2	14	2	18	0	6	1	7	4	14	0	18	1	11	3	15	58
11:30 PM	2	8	1	11	2	3	1	6	2	14	1	17	2	11	6	19	53
11:45 PM	1	16	3	20	1	1	2	4	0	7	2	9	2	4	3	9	42
Total	8	61	11	80	7	20	6	33	11	49	4	64	9	34	16	59	236
Grand Total	46	298	32	376	38	123	27	188	54	237	33	324	34	177	49	260	1148
Apprch %	12.2	79.3	8.5		20.2	65.4	14.4		16.7	73.1	10.2		13.1	68.1	18.8		
Total %	4	26	2.8	32.8	3.3	10.7	2.4	16.4	4.7	20.6	2.9	28.2	3	15.4	4.3	22.6	

	Cook Street Southbound				Country Club Drive Westbound				Cook Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	5	**41**	**3**	**49**	6	**17**	**3**	**26**	7	**35**	**12**	**54**	**8**	**28**	6	**42**	**171**
09:15 PM	4	29	1	34	**8**	15	3	26	**8**	34	2	44	3	19	**9**	31	135
09:30 PM	**9**	32	2	43	5	12	1	18	5	20	2	27	1	28	2	31	119
09:45 PM	2	37	2	41	1	12	3	16	8	18	4	30	2	18	2	22	109
Total Volume	20	139	8	167	20	56	10	86	28	107	20	155	14	93	19	126	534
% App. Total	12	83.2	4.8		23.3	65.1	11.6		18.1	69	12.9		11.1	73.8	15.1		
PHF	.556	.848	.667	.852	.625	.824	.833	.827	.875	.764	.417	.718	.438	.830	.528	.750	.781

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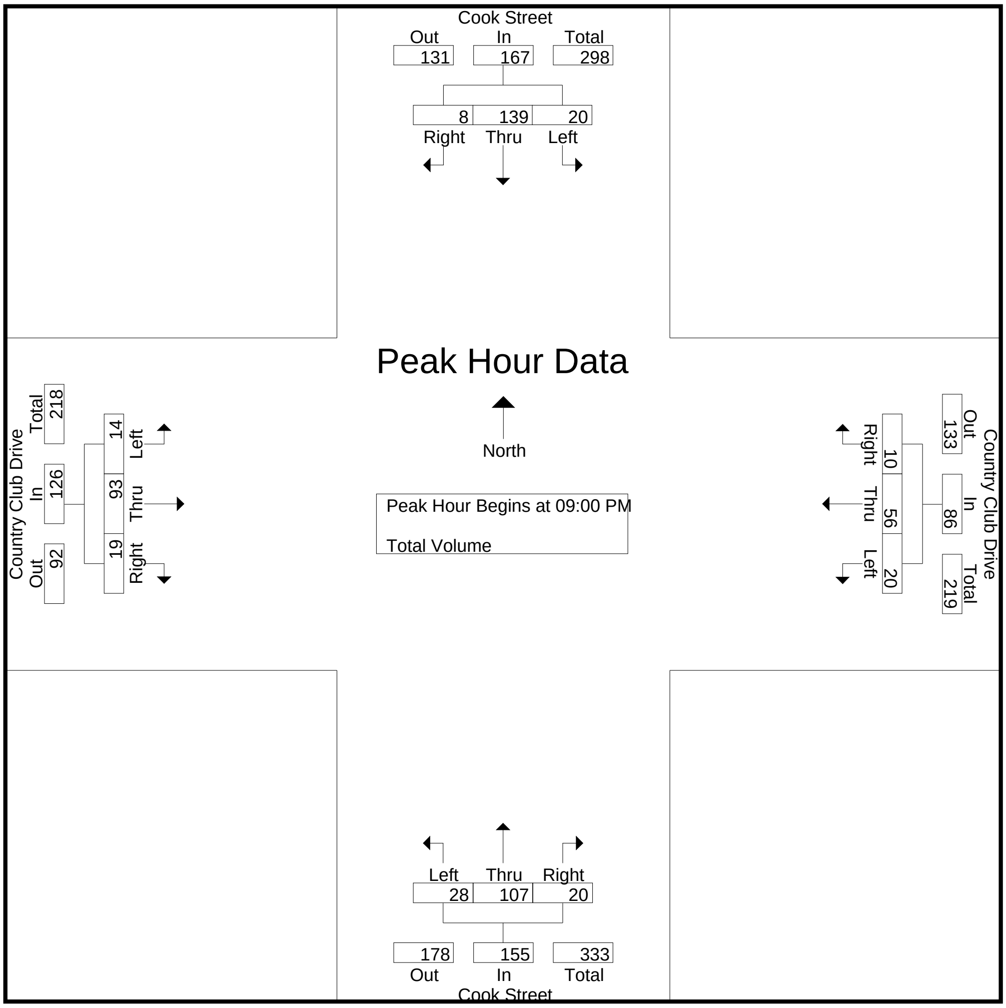
City of Palm Desert
N/S: Cook Street
E/W: Country Club Drive
Weather: Clear

File Name : 09_PLD_Cook_Country WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	5	**41**	**3**	**49**	6	**17**	**3**	**26**	7	**35**	**12**	**54**	**8**	**28**	6	**42**
+15 mins.	4	29	1	34	**8**	15	3	26	**8**	34	2	44	3	19	**9**	31
+30 mins.	**9**	32	2	43	5	12	1	18	5	20	2	27	1	28	2	31
+45 mins.	2	37	2	41	1	12	3	16	8	18	4	30	2	18	2	22
Total Volume	20	139	8	167	20	56	10	86	28	107	20	155	14	93	19	126
% App. Total	12	83.2	4.8		23.3	65.1	11.6		18.1	69	12.9		11.1	73.8	15.1	
PHF	.556	.848	.667	.852	.625	.824	.833	.827	.875	.764	.417	.718	.438	.830	.528	.750

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County of Riverside
N/S: Varner Road
E/W: Classic Club Boulevard
Weather: Clear

File Name : 10_CRV_Varner_Classic WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Varner Road Southbound			Classic Club Boulevard Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	103	103	3	2	5	54	0	54	162
04:15 PM	0	234	234	2	0	2	65	1	66	302
04:30 PM	2	194	196	2	1	3	93	1	94	293
04:45 PM	2	82	84	2	1	3	208	0	208	295
Total	4	613	617	9	4	13	420	2	422	1052
05:00 PM	1	51	52	1	0	1	241	2	243	296
05:15 PM	1	44	45	0	3	3	73	2	75	123
05:30 PM	0	45	45	1	0	1	50	0	50	96
05:45 PM	1	35	36	1	0	1	36	0	36	73
Total	3	175	178	3	3	6	400	4	404	588
06:00 PM	0	22	22	2	0	2	36	0	36	60
06:15 PM	1	28	29	2	0	2	26	0	26	57
06:30 PM	0	17	17	1	0	1	21	0	21	39
06:45 PM	0	19	19	0	0	0	24	0	24	43
Total	1	86	87	5	0	5	107	0	107	199
Grand Total	8	874	882	17	7	24	927	6	933	1839
Apprch %	0.9	99.1		70.8	29.2		99.4	0.6		
Total %	0.4	47.5	48	0.9	0.4	1.3	50.4	0.3	50.7	

	Varner Road Southbound			Classic Club Boulevard Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	**234**	**234**	**2**	0	2	65	1	66	**302**
04:30 PM	**2**	194	196	2	**1**	**3**	93	1	94	293
04:45 PM	2	82	84	2	1	3	208	0	208	295
05:00 PM	1	51	52	1	0	1	**241**	**2**	**243**	296
Total Volume	5	561	566	7	2	9	607	4	611	1186
% App. Total	0.9	99.1		77.8	22.2		99.3	0.7		
PHF	.625	.599	.605	.875	.500	.750	.630	.500	.629	.982

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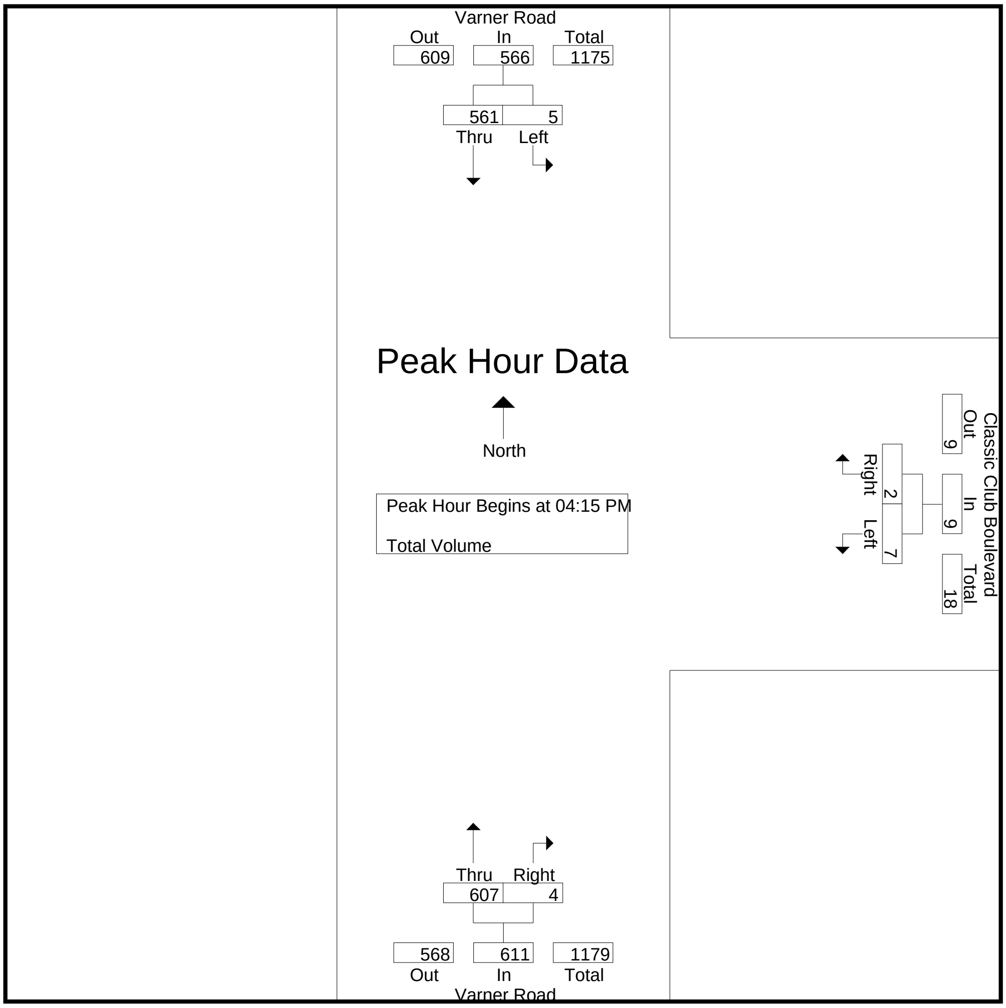
File Name : 10_CRV_Varner_Classic WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:30 PM		
+0 mins.	0	103	103	**3**	**2**	**5**	93	1	94
+15 mins.	0	**234**	**234**	2	0	2	208	0	208
+30 mins.	**2**	194	196	2	1	3	**241**	**2**	**243**
+45 mins.	2	82	84	2	1	3	73	2	75
Total Volume	4	613	617	9	4	13	615	5	620
% App. Total	0.6	99.4		69.2	30.8		99.2	0.8	
PHF	.500	.655	.659	.750	.500	.650	.638	.625	.638

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County of Riverside
N/S: Varner Road
E/W: Classic Club Boulevard
Weather: Clear

File Name : 10_CRV_Varner_Classic WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Varner Road Southbound			Classic Club Boulevard Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	1	6	7	0	0	0	10	0	10	17
09:15 PM	1	4	5	0	0	0	8	0	8	13
09:30 PM	0	9	9	0	0	0	1	0	1	10
09:45 PM	0	8	8	0	0	0	7	0	7	15
Total	2	27	29	0	0	0	26	0	26	55
10:00 PM	0	6	6	1	0	1	4	0	4	11
10:15 PM	0	4	4	0	0	0	7	0	7	11
10:30 PM	0	2	2	1	0	1	3	1	4	7
10:45 PM	0	5	5	0	0	0	3	0	3	8
Total	0	17	17	2	0	2	17	1	18	37
11:00 PM	0	1	1	0	0	0	3	0	3	4
11:15 PM	0	4	4	0	0	0	2	0	2	6
11:30 PM	0	3	3	0	0	0	1	0	1	4
11:45 PM	0	4	4	0	0	0	2	0	2	6
Total	0	12	12	0	0	0	8	0	8	20
Grand Total	2	56	58	2	0	2	51	1	52	112
Apprch %	3.4	96.6		100	0		98.1	1.9		
Total %	1.8	50	51.8	1.8	0	1.8	45.5	0.9	46.4	

	Varner Road Southbound			Classic Club Boulevard Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	**1**	6	7	0	0	0	**10**	0	**10**	**17**
09:15 PM	1	4	5	0	0	0	8	0	8	13
09:30 PM	0	**9**	**9**	0	0	0	1	0	1	10
09:45 PM	0	8	8	0	0	0	7	0	7	15
Total Volume	2	27	29	0	0	0	26	0	26	55
% App. Total	6.9	93.1		0	0		100	0		
PHF	.500	.750	.806	.000	.000	.000	.650	.000	.650	.809

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County of Riverside
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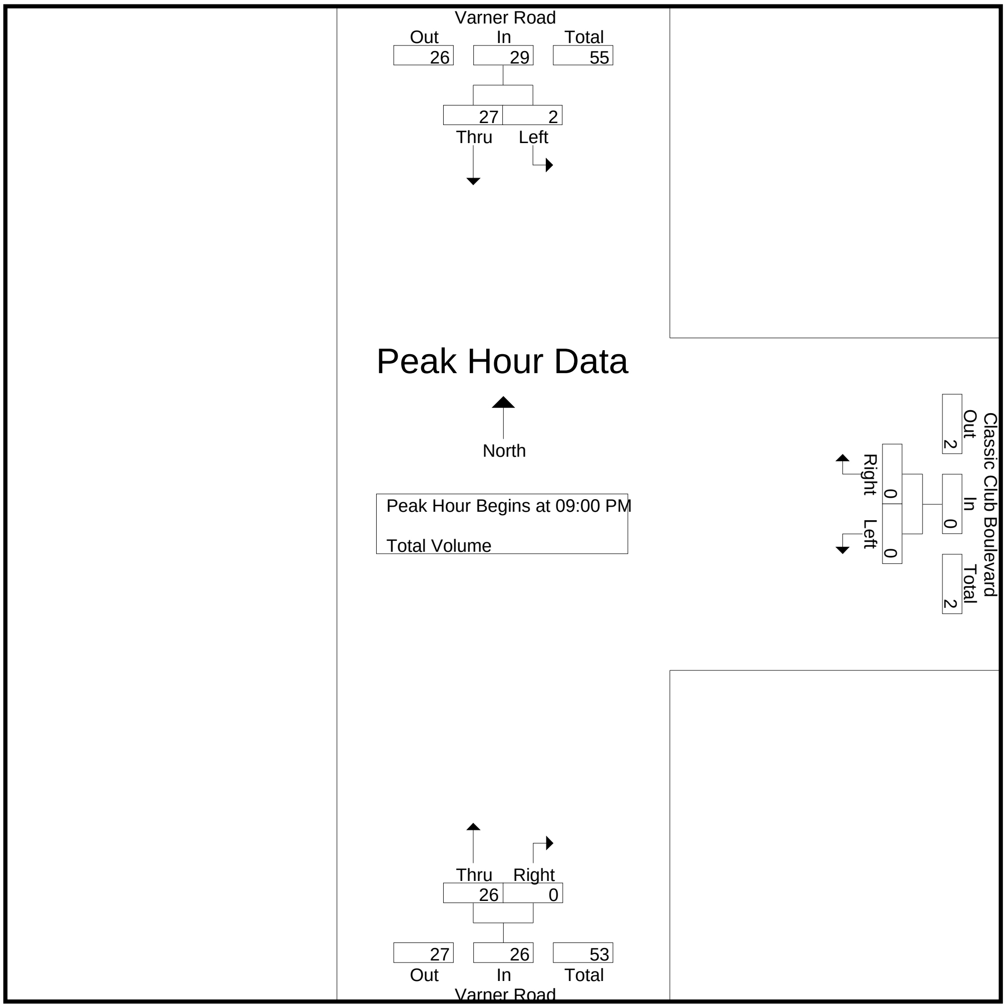
E/W: Classic Club Boulevard
Weather: Clear

File Name : 10_CRV_Varner_Classic WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:45 PM			09:00 PM		
+0 mins.	**1**	6	7	0	0	0	**10**	0	**10**
+15 mins.	1	4	5	**1**	0	**1**	8	0	8
+30 mins.	0	**9**	**9**	0	0	0	1	0	1
+45 mins.	0	8	8	1	0	1	7	0	7
Total Volume	2	27	29	2	0	2	26	0	26
% App. Total	6.9	93.1		100	0		100	0	
PHF	.500	.750	.806	.500	.000	.500	.650	.000	.650

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County of Riverside
N/S: Varner Road
E/W: Ave 38
Weather: Clear

File Name : 11_CRV_Varner_Ave 38 WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Varner Road Southbound			Ave 38 Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	4	86	90	0	2	2	42	0	42	134
04:15 PM	5	215	220	0	7	7	56	0	56	283
04:30 PM	6	208	214	0	4	4	101	0	101	319
04:45 PM	8	81	89	1	9	10	220	0	220	319
Total	23	590	613	1	22	23	419	0	419	1055
05:00 PM	2	45	47	0	9	9	232	0	232	288
05:15 PM	5	38	43	0	2	2	56	1	57	102
05:30 PM	3	40	43	0	4	4	41	0	41	88
05:45 PM	2	33	35	0	9	9	28	0	28	72
Total	12	156	168	0	24	24	357	1	358	550
06:00 PM	2	20	22	0	3	3	41	0	41	66
06:15 PM	3	21	24	0	0	0	18	0	18	42
06:30 PM	4	19	23	0	0	0	22	0	22	45
06:45 PM	2	14	16	0	1	1	19	0	19	36
Total	11	74	85	0	4	4	100	0	100	189
Grand Total	46	820	866	1	50	51	876	1	877	1794
Apprch %	5.3	94.7		2	98		99.9	0.1		
Total %	2.6	45.7	48.3	0.1	2.8	2.8	48.8	0.1	48.9	

	Varner Road Southbound			Ave 38 Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	5	**215**	**220**	0	7	7	56	0	56	283
04:30 PM	6	208	214	0	4	4	101	0	101	**319**
04:45 PM	**8**	81	89	**1**	**9**	**10**	220	0	220	319
05:00 PM	2	45	47	0	9	9	**232**	0	**232**	288
Total Volume	21	549	570	1	29	30	609	0	609	1209
% App. Total	3.7	96.3		3.3	96.7		100	0		
PHF	.656	.638	.648	.250	.806	.750	.656	.000	.656	.947

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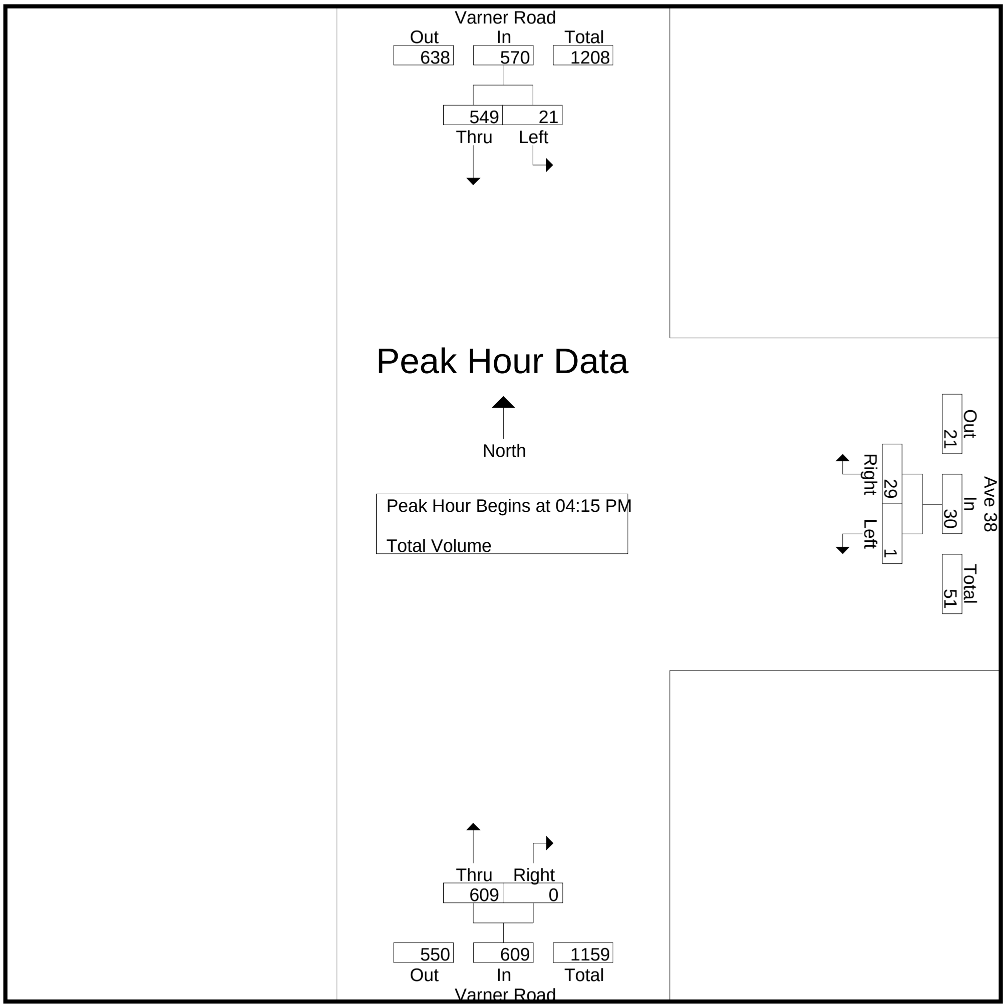
County of Riverside
N/S: Varner Road
E/W: Ave 38
Weather: Clear

File Name : 11_CRV_Varner_Ave 38 WPM
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:15 PM			04:30 PM		
+0 mins.	4	86	90	0	7	7	101	0	101
+15 mins.	5	**215**	**220**	0	4	4	220	0	220
+30 mins.	6	208	214	**1**	**9**	**10**	**232**	0	**232**
+45 mins.	**8**	81	89	0	9	9	56	**1**	57
Total Volume	23	590	613	1	29	30	609	1	610
% App. Total	3.8	96.2		3.3	96.7		99.8	0.2	
PHF	.719	.686	.697	.250	.806	.750	.656	.250	.657

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County of Riverside
N/S: Varner Road
E/W: Ave 38
Weather: Clear

File Name : 11_CRV_Varner_Ave 38 WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Varner Road Southbound			Ave 38 Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	0	4	4	0	0	0	5	0	5	9
09:15 PM	0	4	4	0	0	0	9	1	10	14
09:30 PM	0	8	8	0	0	0	1	0	1	9
09:45 PM	0	7	7	0	2	2	4	0	4	13
Total	0	23	23	0	2	2	19	1	20	45
10:00 PM	0	8	8	0	0	0	5	0	5	13
10:15 PM	0	3	3	0	0	0	6	0	6	9
10:30 PM	0	2	2	0	0	0	3	0	3	5
10:45 PM	0	2	2	0	0	0	3	0	3	5
Total	0	15	15	0	0	0	17	0	17	32
11:00 PM	0	0	0	0	0	0	3	0	3	3
11:15 PM	0	2	2	0	0	0	3	0	3	5
11:30 PM	0	2	2	1	0	1	1	0	1	4
11:45 PM	1	2	3	0	0	0	1	0	1	4
Total	1	6	7	1	0	1	8	0	8	16
Grand Total	1	44	45	1	2	3	44	1	45	93
Apprch %	2.2	97.8		33.3	66.7		97.8	2.2		
Total %	1.1	47.3	48.4	1.1	2.2	3.2	47.3	1.1	48.4	

	Varner Road Southbound			Ave 38 Westbound			Varner Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:15 PM										
09:15 PM	0	4	4	0	0	0	**9**	**1**	**10**	**14**
09:30 PM	0	**8**	**8**	0	0	0	1	0	1	9
09:45 PM	0	7	7	0	**2**	**2**	4	0	4	13
10:00 PM	0	8	8	0	0	0	5	0	5	13
Total Volume	0	27	27	0	2	2	19	1	20	49
% App. Total	0	100		0	100		95	5		
PHF	.000	.844	.844	.000	.250	.250	.528	.250	.500	.875

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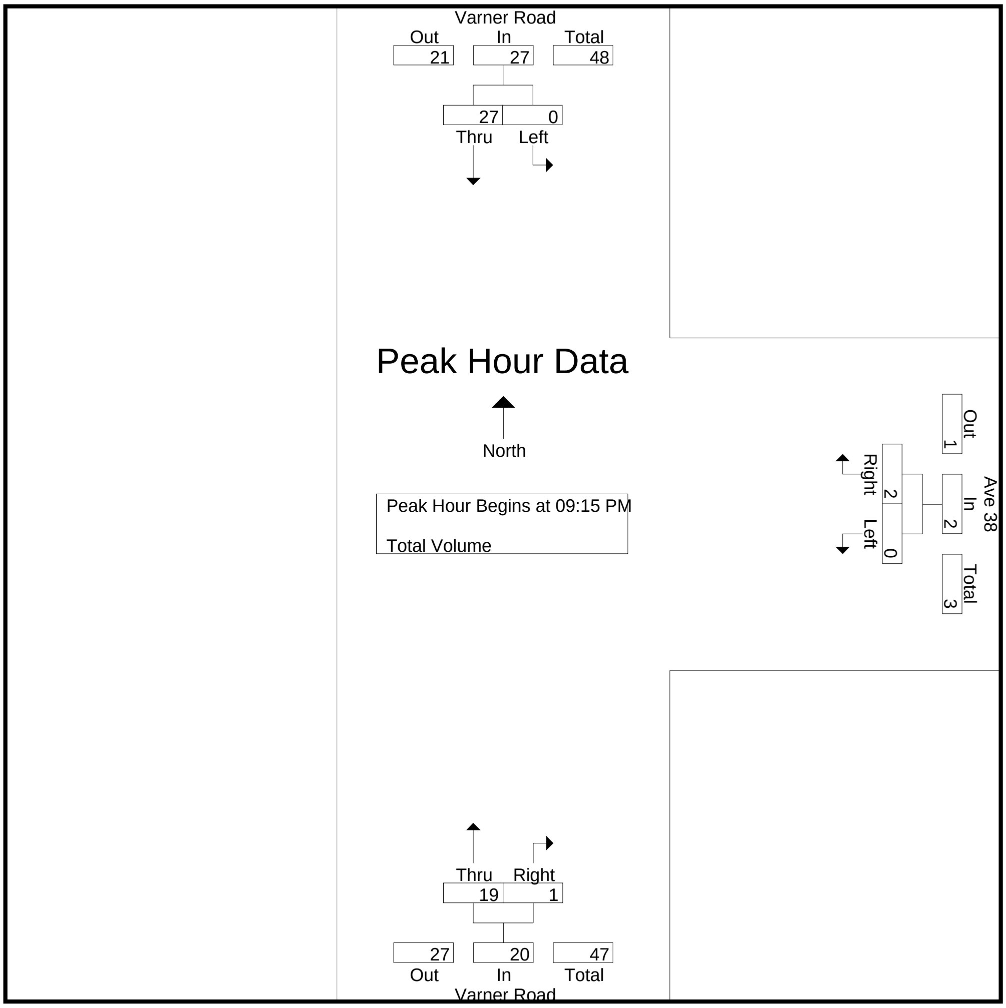
County of Riverside
N/S: Varner Road
E/W: Ave 38
Weather: Clear

File Name : 11_CRV_Varner_Ave 38 WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:15 PM			09:00 PM			09:00 PM		
+0 mins.	0	4	4	0	0	0	5	0	5
+15 mins.	0	**8**	**8**	0	0	0	**9**	**1**	**10**
+30 mins.	0	7	7	0	0	0	1	0	1
+45 mins.	0	8	8	0	**2**	**2**	4	0	4
Total Volume	0	27	27	0	2	2	19	1	20
% App. Total	0	100		0	100		95	5	
PHF	.000	.844	.844	.000	.250	.250	.528	.250	.500

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	28	10	4	42	99	46	16	161	0	0	0	0	4	71	2	77	280
04:15 PM	23	9	4	36	68	57	11	136	0	0	0	0	6	126	6	138	310
04:30 PM	15	3	10	28	28	88	10	126	0	0	0	0	3	148	2	153	307
04:45 PM	16	3	9	28	14	214	12	240	0	0	0	0	4	112	0	116	384
Total	82	25	27	134	209	405	49	663	0	0	0	0	17	457	10	484	1281
05:00 PM	19	6	12	37	57	147	9	213	0	0	0	0	3	67	1	71	321
05:15 PM	13	8	2	23	71	53	5	129	0	0	0	0	4	42	2	48	200
05:30 PM	16	9	2	27	79	36	13	128	0	0	0	0	1	49	6	56	211
05:45 PM	13	6	1	20	66	27	2	95	0	0	0	0	4	40	7	51	166
Total	61	29	17	107	273	263	29	565	0	0	0	0	12	198	16	226	898
06:00 PM	16	5	4	25	46	29	9	84	0	0	0	0	2	27	6	35	144
06:15 PM	12	2	0	14	52	25	7	84	0	0	0	0	1	28	1	30	128
06:30 PM	6	6	1	13	48	17	8	73	0	0	0	0	0	25	6	31	117
06:45 PM	7	5	2	14	28	19	5	52	0	0	0	0	1	13	6	20	86
Total	41	18	7	66	174	90	29	293	0	0	0	0	4	93	19	116	475
Grand Total	184	72	51	307	656	758	107	1521	0	0	0	0	33	748	45	826	2654
Apprch %	59.9	23.5	16.6		43.1	49.8	7		0	0	0		4	90.6	5.4		
Total %	6.9	2.7	1.9	11.6	24.7	28.6	4	57.3	0	0	0	0	1.2	28.2	1.7	31.1	
Passenger Vehicles	181	69	50	300	629	677	103	1409	0	0	0	0	33	730	44	807	2516
% Passenger Vehicles	98.4	95.8	98	97.7	95.9	89.3	96.3	92.6	0	0	0	0	100	97.6	97.8	97.7	94.8
Large 2 Axle Vehicles	3	3	0	6	17	34	4	55	0	0	0	0	0	14	1	15	76
% Large 2 Axle Vehicles	1.6	4.2	0	2	2.6	4.5	3.7	3.6	0	0	0	0	0	1.9	2.2	1.8	2.9
3 Axle Vehicles	0	0	0	0	1	5	0	6	0	0	0	0	0	3	0	3	9
% 3 Axle Vehicles	0	0	0	0	0.2	0.7	0	0.4	0	0	0	0	0	0.4	0	0.4	0.3
4+ Axle Trucks	0	0	1	1	9	42	0	51	0	0	0	0	0	1	0	1	53
% 4+ Axle Trucks	0	0	2	0.3	1.4	5.5	0	3.4	0	0	0	0	0	0.1	0	0.1	2

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**23**	**9**	4	36	**68**	57	11	136	0	0	0	0	**6**	126	**6**	138	310
04:30 PM	15	3	10	28	28	88	10	126	0	0	0	0	3	**148**	2	**153**	307
04:45 PM	16	3	9	28	14	**214**	**12**	**240**	0	0	0	0	4	112	0	116	**384**
05:00 PM	19	6	**12**	**37**	57	147	9	213	0	0	0	0	3	67	1	71	321
Total Volume	73	21	35	129	167	506	42	715	0	0	0	0	16	453	9	478	1322
% App. Total	56.6	16.3	27.1		23.4	70.8	5.9		0	0	0		3.3	94.8	1.9		
PHF	.793	.583	.729	.872	.614	.591	.875	.745	.000	.000	.000	.000	.667	.765	.375	.781	.861

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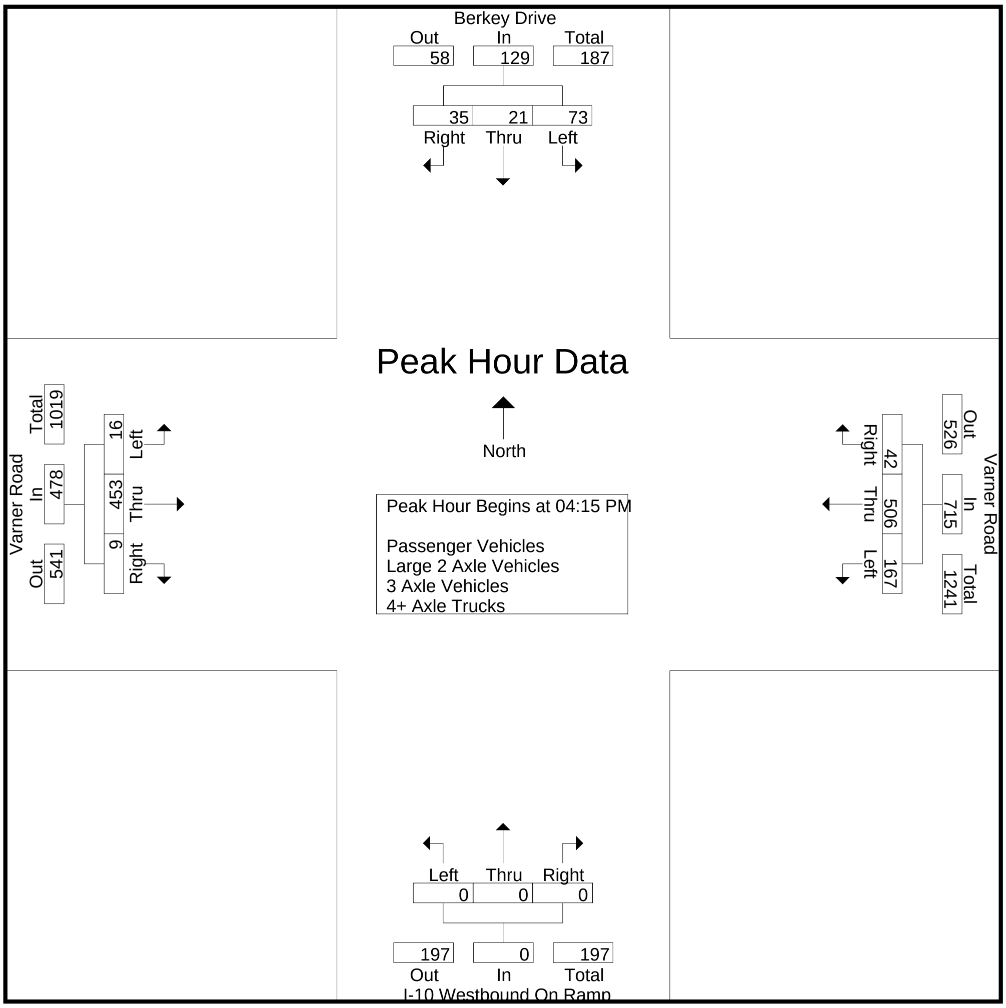
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:15 PM				04:00 PM				04:00 PM			
+0 mins.	**28**	**10**	4	**42**	**68**	57	11	136	0	0	0	0	4	71	2	77
+15 mins.	23	9	4	36	28	88	10	126	0	0	0	0	**6**	126	**6**	138
+30 mins.	15	3	**10**	28	14	**214**	**12**	**240**	0	0	0	0	3	**148**	2	**153**
+45 mins.	16	3	9	28	57	147	9	213	0	0	0	0	4	112	0	116
Total Volume	82	25	27	134	167	506	42	715	0	0	0	0	17	457	10	484
% App. Total	61.2	18.7	20.1		23.4	70.8	5.9		0	0	0		3.5	94.4	2.1	
PHF	.732	.625	.675	.798	.614	.591	.875	.745	.000	.000	.000	.000	.708	.772	.417	.791

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	28	10	4	42	90	45	15	150	0	0	0	0	4	69	2	75	267
04:15 PM	22	8	4	34	66	56	11	133	0	0	0	0	6	124	6	136	303
04:30 PM	15	3	9	27	26	85	9	120	0	0	0	0	3	142	2	147	294
04:45 PM	16	3	9	28	14	174	12	200	0	0	0	0	4	109	0	113	341
Total	81	24	26	131	196	360	47	603	0	0	0	0	17	444	10	471	1205
05:00 PM	19	6	12	37	52	121	8	181	0	0	0	0	3	67	1	71	289
05:15 PM	13	8	2	23	68	50	5	123	0	0	0	0	4	42	2	48	194
05:30 PM	16	9	2	27	77	36	13	126	0	0	0	0	1	48	6	55	208
05:45 PM	13	6	1	20	65	25	2	92	0	0	0	0	4	38	7	49	161
Total	61	29	17	107	262	232	28	522	0	0	0	0	12	195	16	223	852
06:00 PM	16	5	4	25	44	28	9	81	0	0	0	0	2	26	6	34	140
06:15 PM	11	2	0	13	52	24	7	83	0	0	0	0	1	27	1	29	125
06:30 PM	6	6	1	13	47	16	8	71	0	0	0	0	0	25	5	30	114
06:45 PM	6	3	2	11	28	17	4	49	0	0	0	0	1	13	6	20	80
Total	39	16	7	62	171	85	28	284	0	0	0	0	4	91	18	113	459
Grand Total	181	69	50	300	629	677	103	1409	0	0	0	0	33	730	44	807	2516
Apprch %	60.3	23	16.7		44.6	48	7.3		0	0	0		4.1	90.5	5.5		
Total %	7.2	2.7	2	11.9	25	26.9	4.1	56	0	0	0	0	1.3	29	1.7	32.1	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**22**	**8**	4	34	**66**	56	11	133	0	0	0	0	**6**	124	**6**	136	303
04:30 PM	15	3	9	27	26	85	9	120	0	0	0	0	3	**142**	2	**147**	294
04:45 PM	16	3	9	28	14	**174**	**12**	**200**	0	0	0	0	4	109	0	113	**341**
05:00 PM	19	6	**12**	**37**	52	121	8	181	0	0	0	0	3	67	1	71	289
Total Volume	72	20	34	126	158	436	40	634	0	0	0	0	16	442	9	467	1227
% App. Total	57.1	15.9	27		24.9	68.8	6.3		0	0	0		3.4	94.6	1.9		
PHF	.818	.625	.708	.851	.598	.626	.833	.793	.000	.000	.000	.000	.667	.778	.375	.794	.900

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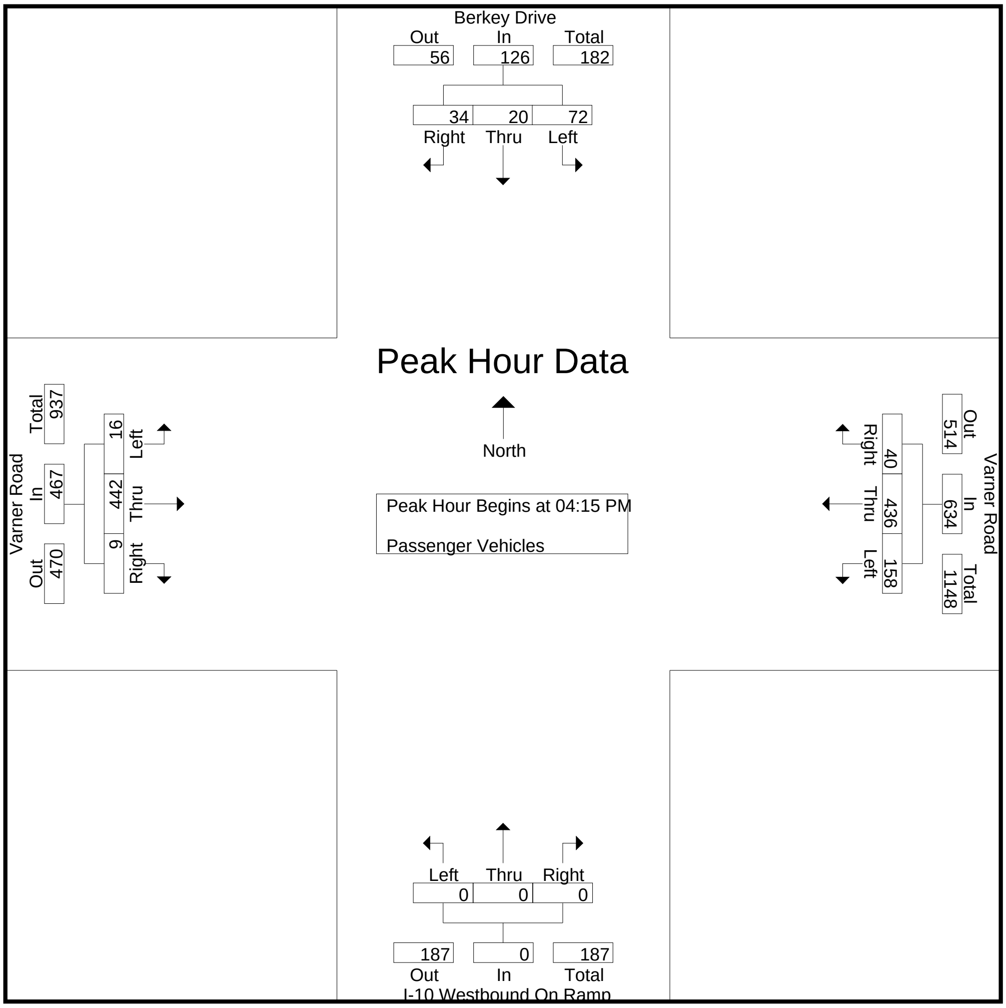
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**22**	**8**	4	34	**66**	56	11	133	0	0	0	0	**6**	124	**6**	136
+15 mins.	15	3	9	27	26	85	9	120	0	0	0	0	3	**142**	2	**147**
+30 mins.	16	3	9	28	14	**174**	**12**	**200**	0	0	0	0	4	109	0	113
+45 mins.	19	6	**12**	**37**	52	121	8	181	0	0	0	0	3	67	1	71
Total Volume	72	20	34	126	158	436	40	634	0	0	0	0	16	442	9	467
% App. Total	57.1	15.9	27		24.9	68.8	6.3		0	0	0		3.4	94.6	1.9	
PHF	.818	.625	.708	.851	.598	.626	.833	.793	.000	.000	.000	.000	.667	.778	.375	.794

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	7	1	1	9	0	0	0	0	0	1	0	1	10
04:15 PM	1	1	0	2	1	0	0	1	0	0	0	0	0	1	0	1	4
04:30 PM	0	0	0	0	1	1	1	3	0	0	0	0	0	4	0	4	7
04:45 PM	0	0	0	0	0	13	0	13	0	0	0	0	0	3	0	3	16
Total	1	1	0	2	9	15	2	26	0	0	0	0	0	9	0	9	37
05:00 PM	0	0	0	0	2	9	1	12	0	0	0	0	0	0	0	0	12
05:15 PM	0	0	0	0	2	3	0	5	0	0	0	0	0	0	0	0	5
05:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
05:45 PM	0	0	0	0	1	2	0	3	0	0	0	0	0	2	0	2	5
Total	0	0	0	0	6	14	1	21	0	0	0	0	0	3	0	3	24
06:00 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	3
06:15 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
06:30 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	1	3
06:45 PM	1	2	0	3	0	2	1	3	0	0	0	0	0	0	0	0	6
Total	2	2	0	4	2	5	1	8	0	0	0	0	0	2	1	3	15
Grand Total	3	3	0	6	17	34	4	55	0	0	0	0	0	14	1	15	76
Apprch %	50	50	0		30.9	61.8	7.3		0	0	0		0	93.3	6.7		
Total %	3.9	3.9	0	7.9	22.4	44.7	5.3	72.4	0	0	0	0	0	18.4	1.3	19.7	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**1**	**1**	0	**2**	1	0	0	1	0	0	0	0	0	1	0	1	4
04:30 PM	0	0	0	0	1	1	**1**	3	0	0	0	0	0	**4**	0	**4**	7
04:45 PM	0	0	0	0	0	**13**	0	**13**	0	0	0	0	0	3	0	3	**16**
05:00 PM	0	0	0	0	**2**	9	1	12	0	0	0	0	0	0	0	0	12
Total Volume	1	1	0	2	4	23	2	29	0	0	0	0	0	8	0	8	39
% App. Total	50	50	0		13.8	79.3	6.9		0	0	0		0	100	0		
PHF	.250	.250	.000	.250	.500	.442	.500	.558	.000	.000	.000	.000	.000	.500	.000	.500	.609

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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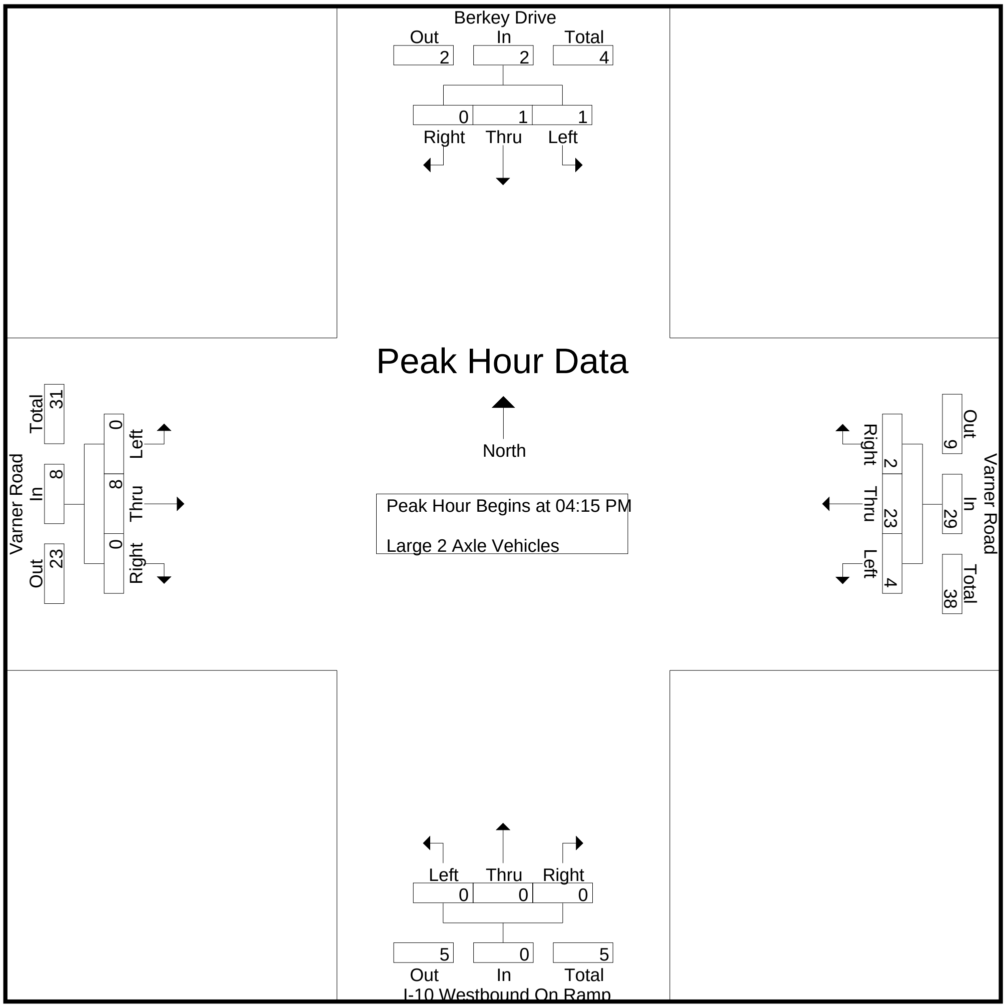

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**1**	**1**	0	**2**	1	0	0	1	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	1	1	**1**	3	0	0	0	0	0	**4**	0	**4**
+30 mins.	0	0	0	0	0	**13**	0	**13**	0	0	0	0	0	3	0	3
+45 mins.	0	0	0	0	**2**	9	1	12	0	0	0	0	0	0	0	0
Total Volume	1	1	0	2	4	23	2	29	0	0	0	0	0	8	0	8
% App. Total	50	50	0		13.8	79.3	6.9		0	0	0		0	100	0	
PHF	.250	.250	.000	.250	.500	.442	.500	.558	.000	.000	.000	.000	.000	.500	.000	.500

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
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Groups Printed- 3 Axle Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	1	3	0	4	0	0	0	0	0	3	0	3	7
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	5	0	6	0	0	0	0	0	3	0	3	9
Apprch %	0	0	0		16.7	83.3	0		0	0	0		0	100	0		
Total %	0	0	0	0	11.1	55.6	0	66.7	0	0	0	0	0	33.3	0	33.3	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	**1**	1	0	**2**	0	0	0	0	0	**2**	0	**2**	**4**
04:45 PM	0	0	0	0	0	**2**	0	2	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	1	5	0	6	0	0	0	0	0	2	0	2	8
% App. Total	0	0	0		16.7	83.3	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.625	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250	.500

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County of Riverside
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E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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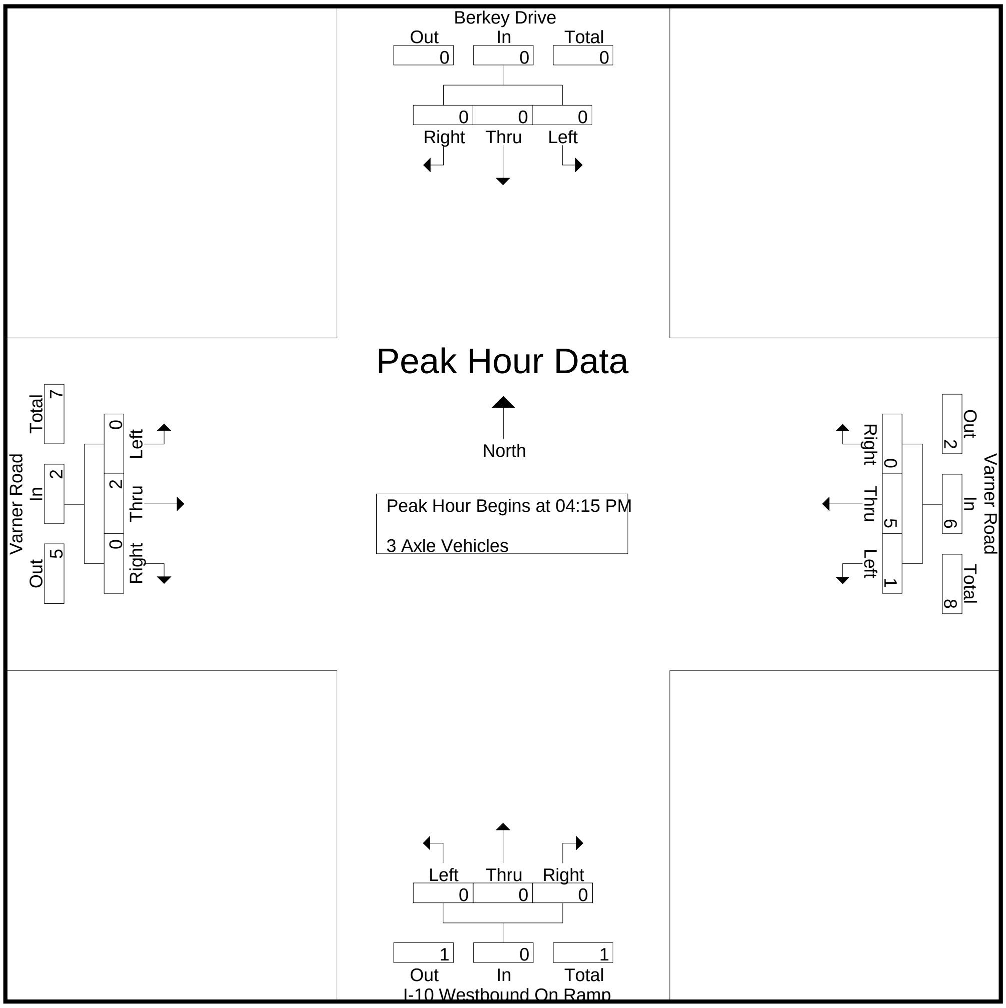

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	1	0	**2**	0	0	0	0	0	**2**	0	**2**
+30 mins.	0	0	0	0	0	**2**	0	2	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	5	0	6	0	0	0	0	0	2	0	2
% App. Total	0	0	0		16.7	83.3	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.250	.625	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	3
04:30 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	25	0	25	0	0	0	0	0	0	0	0	25
Total	0	0	1	1	3	27	0	30	0	0	0	0	0	1	0	1	32
05:00 PM	0	0	0	0	3	15	0	18	0	0	0	0	0	0	0	0	18
05:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	5	15	0	20	0	0	0	0	0	0	0	0	20
06:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	1	1	9	42	0	51	0	0	0	0	0	1	0	1	53
Apprch %	0	0	100		17.6	82.4	0		0	0	0		0	100	0		
Total %	0	0	1.9	1.9	17	79.2	0	96.2	0	0	0	0	0	1.9	0	1.9	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	**1**	0	**1**	3
04:30 PM	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	**25**	0	**25**	0	0	0	0	0	0	0	0	**25**
05:00 PM	0	0	0	0	**3**	15	0	18	0	0	0	0	0	0	0	0	18
Total Volume	0	0	1	1	4	42	0	46	0	0	0	0	0	1	0	1	48
% App. Total	0	0	100		8.7	91.3	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.333	.420	.000	.460	.000	.000	.000	.000	.000	.250	.000	.250	.480

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County of Riverside
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E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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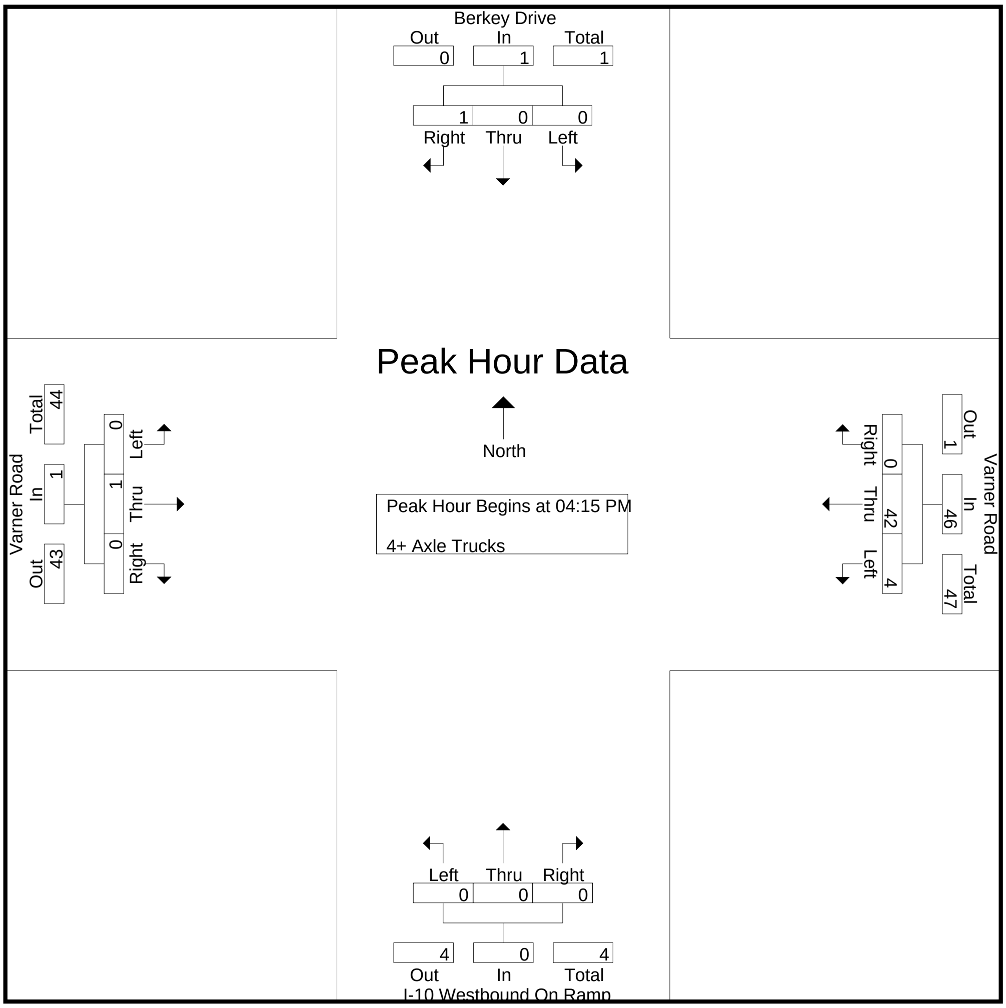

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	1	1	0	2	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	**25**	0	**25**	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	**3**	15	0	18	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	4	42	0	46	0	0	0	0	0	1	0	1
% App. Total	0	0	100		8.7	91.3	0		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.333	.420	.000	.460	.000	.000	.000	.000	.000	.250	.000	.250

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	4	2	1	7	21	4	4	29	0	0	0	0	1	3	0	4	40
09:15 PM	2	0	1	3	12	11	2	25	0	0	0	0	2	3	0	5	33
09:30 PM	4	1	0	5	13	2	4	19	0	0	0	0	1	3	1	5	29
09:45 PM	3	2	1	6	11	3	2	16	0	0	0	0	1	10	0	11	33
Total	13	5	3	21	57	20	12	89	0	0	0	0	5	19	1	25	135
10:00 PM	4	1	0	5	18	6	5	29	0	0	0	0	0	8	0	8	42
10:15 PM	1	2	0	3	21	9	3	33	0	0	0	0	0	3	1	4	40
10:30 PM	10	0	1	11	13	3	2	18	0	0	0	0	1	1	0	2	31
10:45 PM	2	0	0	2	8	1	2	11	0	0	0	0	0	1	1	2	15
Total	17	3	1	21	60	19	12	91	0	0	0	0	1	13	2	16	128
11:00 PM	2	1	0	3	4	7	2	13	0	0	0	0	0	2	0	2	18
11:15 PM	0	0	0	0	7	0	2	9	0	0	0	0	1	1	0	2	11
11:30 PM	0	0	1	1	2	1	1	4	0	0	0	0	0	2	1	3	8
11:45 PM	1	0	0	1	7	1	2	10	0	0	0	0	0	2	0	2	13
Total	3	1	1	5	20	9	7	36	0	0	0	0	1	7	1	9	50
Grand Total	33	9	5	47	137	48	31	216	0	0	0	0	7	39	4	50	313
Apprch %	70.2	19.1	10.6		63.4	22.2	14.4		0	0	0		14	78	8		
Total %	10.5	2.9	1.6	15	43.8	15.3	9.9	69	0	0	0	0	2.2	12.5	1.3	16	
Passenger Vehicles	33	7	5	45	135	45	27	207	0	0	0	0	7	38	4	49	301
% Passenger Vehicles	100	77.8	100	95.7	98.5	93.8	87.1	95.8	0	0	0	0	100	97.4	100	98	96.2
Large 2 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% Large 2 Axle Vehicles	0	0	0	0	0	2.1	0	0.5	0	0	0	0	0	0	0	0	0.3
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	11.1	0	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0.3
4+ Axle Trucks	0	1	0	1	2	2	4	8	0	0	0	0	0	1	0	1	10
% 4+ Axle Trucks	0	11.1	0	2.1	1.5	4.2	12.9	3.7	0	0	0	0	0	2.6	0	2	3.2

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 PM																	
09:45 PM	3	**2**	**1**	6	11	3	2	16	0	0	0	0	**1**	**10**	0	**11**	33
10:00 PM	4	1	0	5	18	6	**5**	29	0	0	0	0	0	8	0	8	**42**
10:15 PM	1	2	0	3	**21**	**9**	3	**33**	0	0	0	0	0	3	**1**	4	40
10:30 PM	**10**	0	1	**11**	13	3	2	18	0	0	0	0	1	1	0	2	31
Total Volume	18	5	2	25	63	21	12	96	0	0	0	0	2	22	1	25	146
% App. Total	72	20	8		65.6	21.9	12.5		0	0	0		8	88	4		
PHF	.450	.625	.500	.568	.750	.583	.600	.727	.000	.000	.000	.000	.500	.550	.250	.568	.869

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Site Code : 12820410
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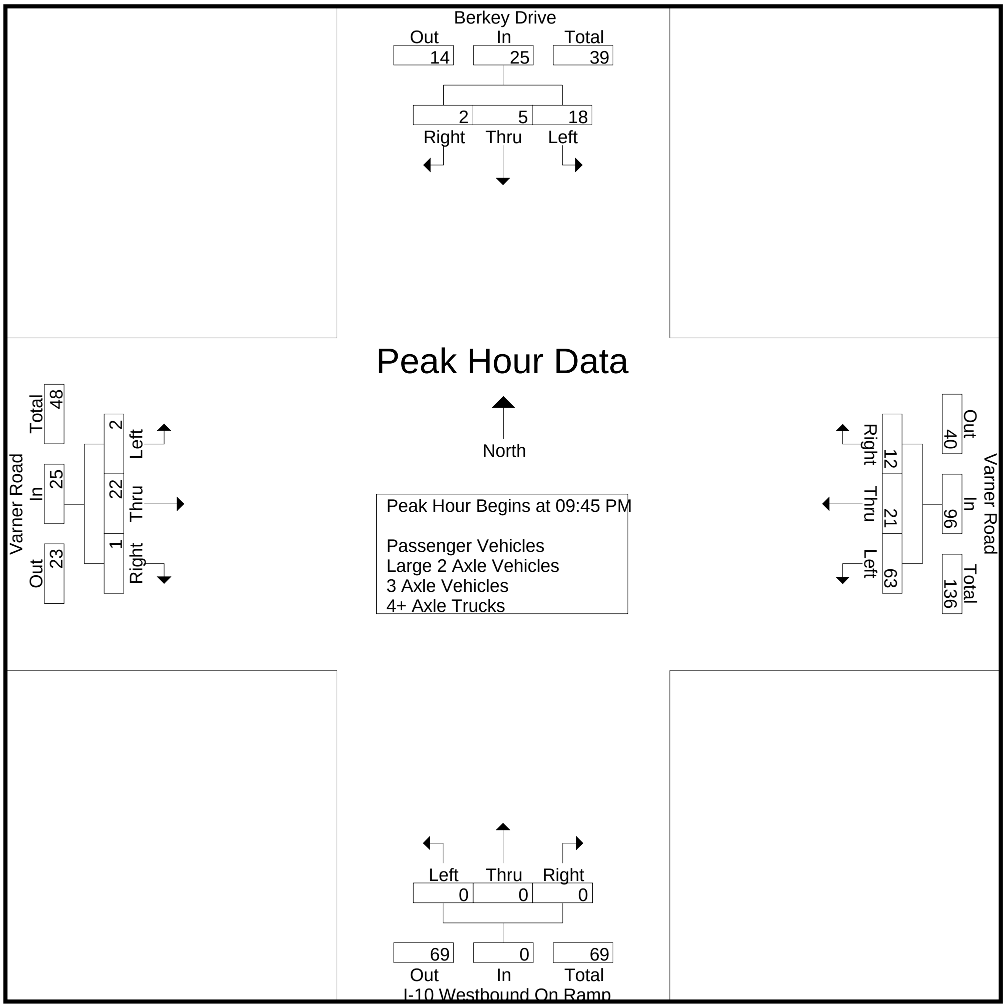

Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 PM				09:30 PM				09:00 PM				09:15 PM			
+0 mins.	3	**2**	**1**	6	13	2	4	19	0	0	0	0	**2**	3	0	5
+15 mins.	4	1	0	5	11	3	2	16	0	0	0	0	1	3	**1**	5
+30 mins.	1	2	0	3	18	6	**5**	29	0	0	0	0	1	**10**	0	**11**
+45 mins.	**10**	0	1	**11**	**21**	**9**	3	**33**	0	0	0	0	0	8	0	8
Total Volume	18	5	2	25	63	20	14	97	0	0	0	0	4	24	1	29
% App. Total	72	20	8		64.9	20.6	14.4		0	0	0		13.8	82.8	3.4	
PHF	.450	.625	.500	.568	.750	.556	.700	.735	.000	.000	.000	.000	.500	.600	.250	.659

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	4	2	1	7	21	4	4	29	0	0	0	0	1	3	0	4	40
09:15 PM	2	0	1	3	11	11	2	24	0	0	0	0	2	3	0	5	32
09:30 PM	4	1	0	5	13	2	2	17	0	0	0	0	1	3	1	5	27
09:45 PM	3	1	1	5	11	3	2	16	0	0	0	0	1	10	0	11	32
Total	13	4	3	20	56	20	10	86	0	0	0	0	5	19	1	25	131
10:00 PM	4	0	0	4	18	6	4	28	0	0	0	0	0	8	0	8	40
10:15 PM	1	2	0	3	20	8	3	31	0	0	0	0	0	2	1	3	37
10:30 PM	10	0	1	11	13	3	2	18	0	0	0	0	1	1	0	2	31
10:45 PM	2	0	0	2	8	1	2	11	0	0	0	0	0	1	1	2	15
Total	17	2	1	20	59	18	11	88	0	0	0	0	1	12	2	15	123
11:00 PM	2	1	0	3	4	6	2	12	0	0	0	0	0	2	0	2	17
11:15 PM	0	0	0	0	7	0	2	9	0	0	0	0	1	1	0	2	11
11:30 PM	0	0	1	1	2	1	0	3	0	0	0	0	0	2	1	3	7
11:45 PM	1	0	0	1	7	0	2	9	0	0	0	0	0	2	0	2	12
Total	3	1	1	5	20	7	6	33	0	0	0	0	1	7	1	9	47
Grand Total	33	7	5	45	135	45	27	207	0	0	0	0	7	38	4	49	301
Apprch %	73.3	15.6	11.1		65.2	21.7	13		0	0	0		14.3	77.6	8.2		
Total %	11	2.3	1.7	15	44.9	15	9	68.8	0	0	0	0	2.3	12.6	1.3	16.3	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 PM																	
09:45 PM	3	1	**1**	5	11	3	2	16	0	0	0	0	**1**	**10**	0	**11**	32
10:00 PM	4	0	0	4	18	6	**4**	28	0	0	0	0	0	8	0	8	**40**
10:15 PM	1	**2**	0	3	**20**	**8**	3	**31**	0	0	0	0	0	2	**1**	3	37
10:30 PM	**10**	0	1	**11**	13	3	2	18	0	0	0	0	1	1	0	2	31
Total Volume	18	3	2	23	62	20	11	93	0	0	0	0	2	21	1	24	140
% App. Total	78.3	13	8.7		66.7	21.5	11.8		0	0	0		8.3	87.5	4.2		
PHF	.450	.375	.500	.523	.775	.625	.688	.750	.000	.000	.000	.000	.500	.525	.250	.545	.875

Counts Unlimited
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Corona, CA 92878
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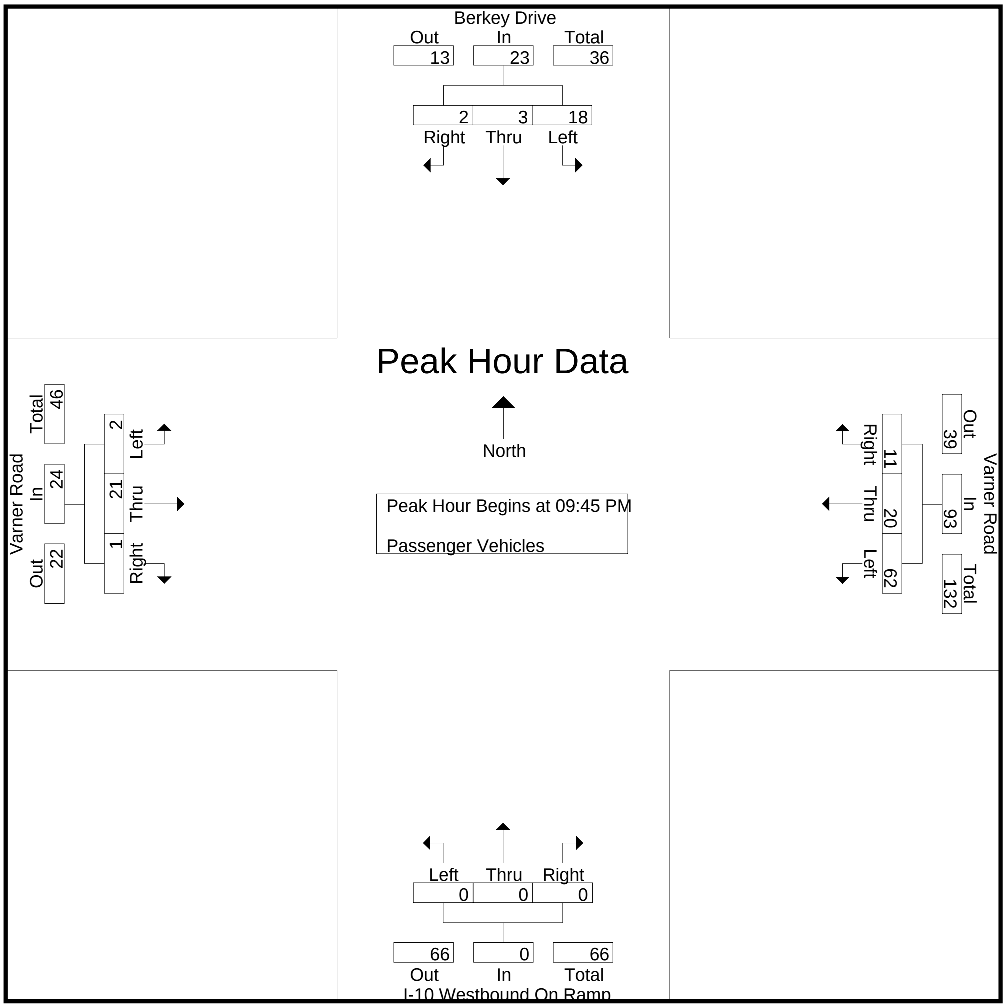
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 PM				09:45 PM				09:45 PM				09:45 PM			
+0 mins.	3	1	**1**	5	11	3	2	16	0	0	0	0	**1**	**10**	0	**11**
+15 mins.	4	0	0	4	18	6	**4**	28	0	0	0	0	0	8	0	8
+30 mins.	1	**2**	0	3	**20**	**8**	3	**31**	0	0	0	0	0	2	**1**	3
+45 mins.	**10**	0	1	**11**	13	3	2	18	0	0	0	0	1	1	0	2
Total Volume	18	3	2	23	62	20	11	93	0	0	0	0	2	21	1	24
% App. Total	78.3	13	8.7		66.7	21.5	11.8		0	0	0		8.3	87.5	4.2	
PHF	.450	.375	.500	.523	.775	.625	.688	.750	.000	.000	.000	.000	.500	.525	.250	.545

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0		
Total %	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 PM																	
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited
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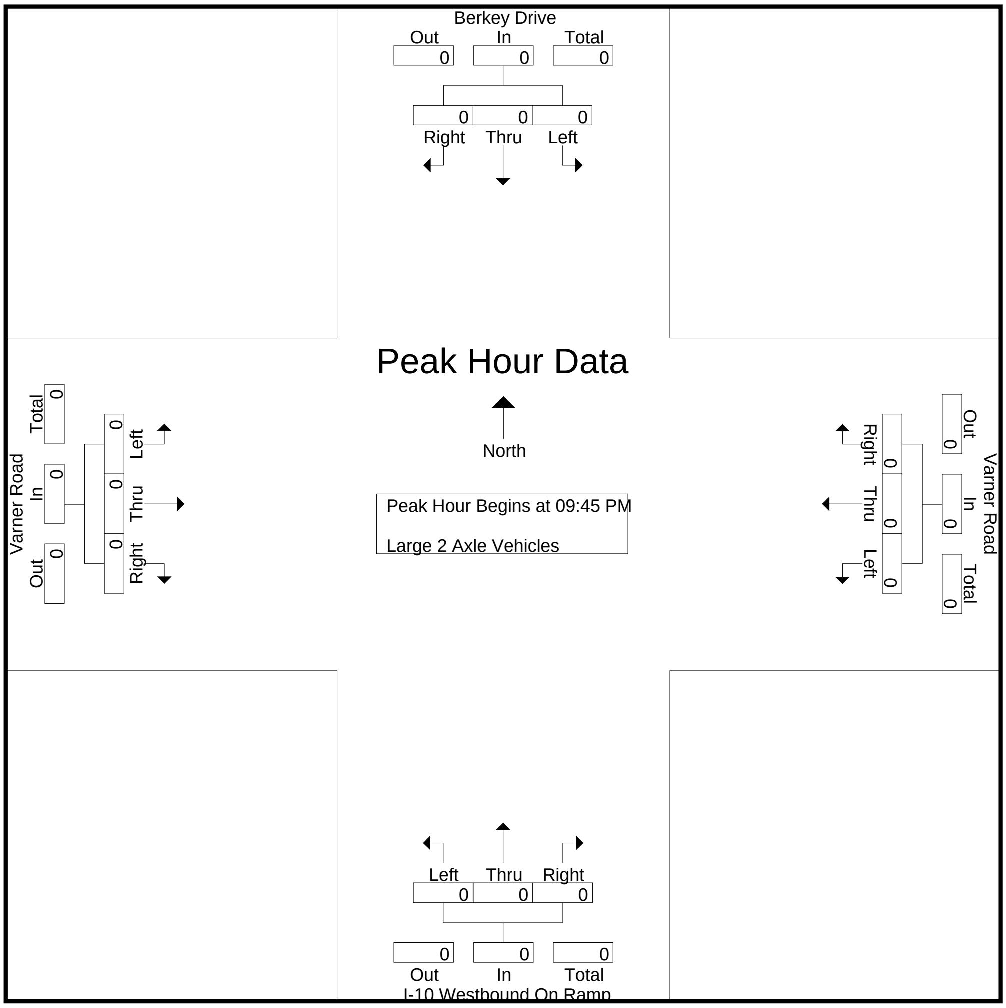
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 PM				09:45 PM				09:45 PM				09:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 PM																	
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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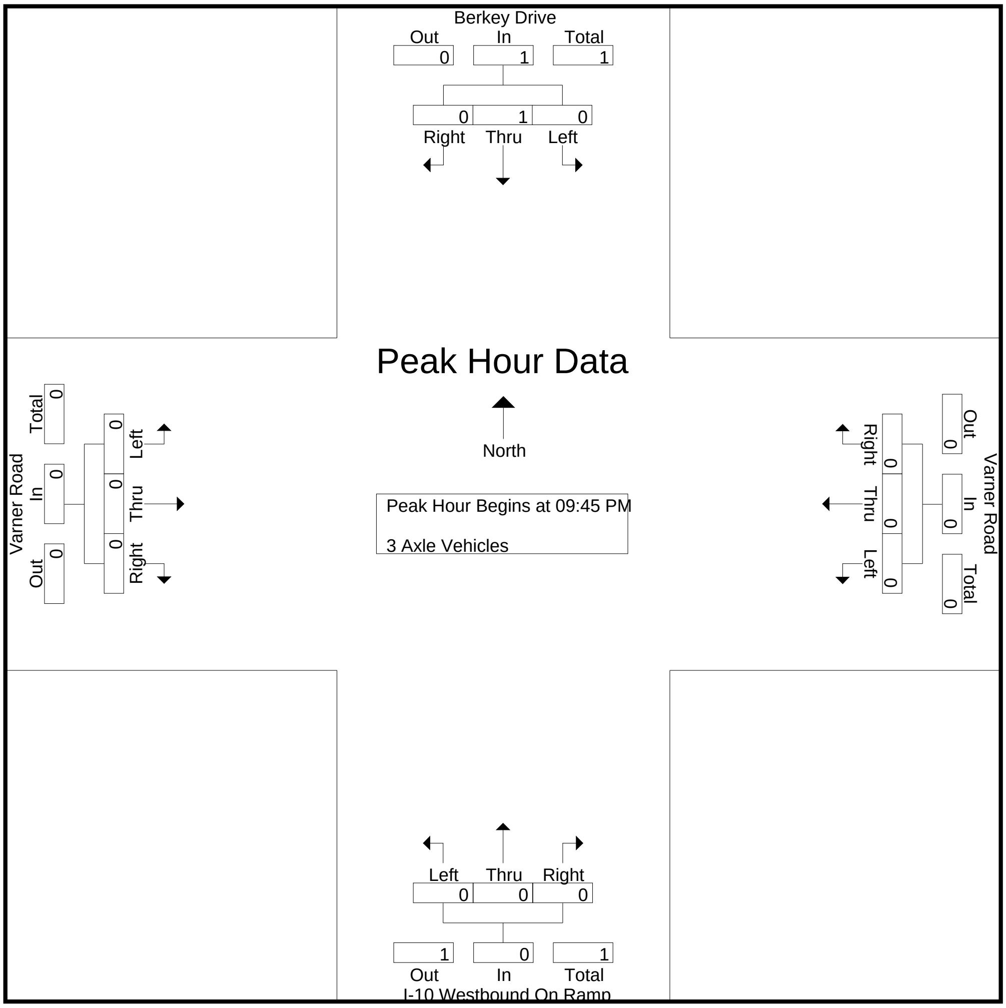
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 PM				09:45 PM				09:45 PM				09:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
09:30 PM	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2
09:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0	4
10:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	3
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	1	3	0	0	0	0	0	1	0	1	4
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
11:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
Grand Total	0	1	0	1	2	2	4	8	0	0	0	0	0	1	0	1	10
Apprch %	0	100	0		25	25	50		0	0	0		0	100	0		
Total %	0	10	0	10	20	20	40	80	0	0	0	0	0	10	0	10	

	Berkey Drive Southbound				Varner Road Westbound				I-10 Westbound On Ramp Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 PM																	
09:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00 PM	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	**1**	0	**1**	**3**
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	1	1	3	0	0	0	0	0	1	0	1	5
% App. Total	0	100	0		33.3	33.3	33.3		0	0	0		0	100	0		
PHF	.000	.250	.000	.250	.250	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250	.417

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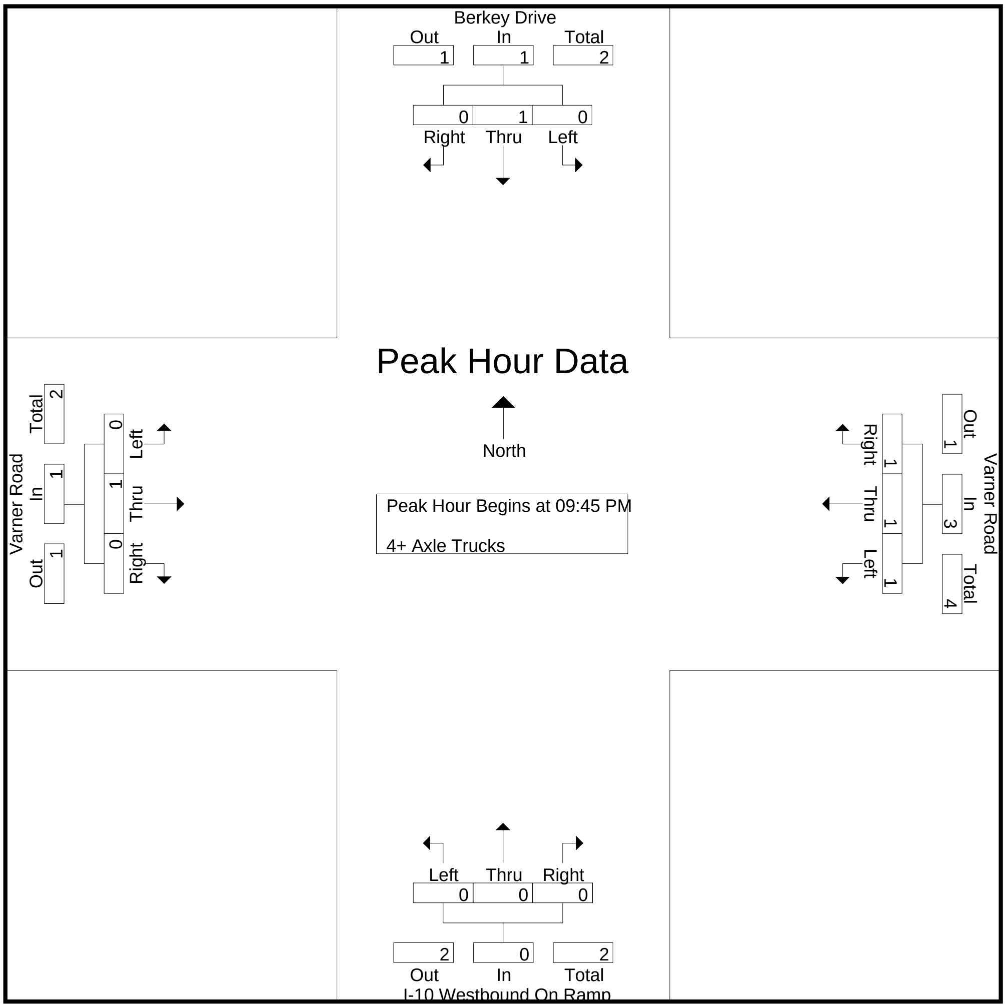
County of Riverside
N/S: Berkey Dr/I-10 Westbound On Ramp
E/W: Varner Road
Weather: Clear

File Name : 14_CRV_10W On_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:45 PM to 10:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 PM				09:45 PM				09:45 PM				09:45 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	**1**	0	**1**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	1	1	3	0	0	0	0	0	1	0	1
% App. Total	0	100	0		33.3	33.3	33.3		0	0	0		0	100	0	
PHF	.000	.250	.000	.250	.250	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250

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County of Riverside
N/S: Washington Street
E/W: Ave 38
Weather: Clear

File Name : 12_CRV_Washington_Ave 38 WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

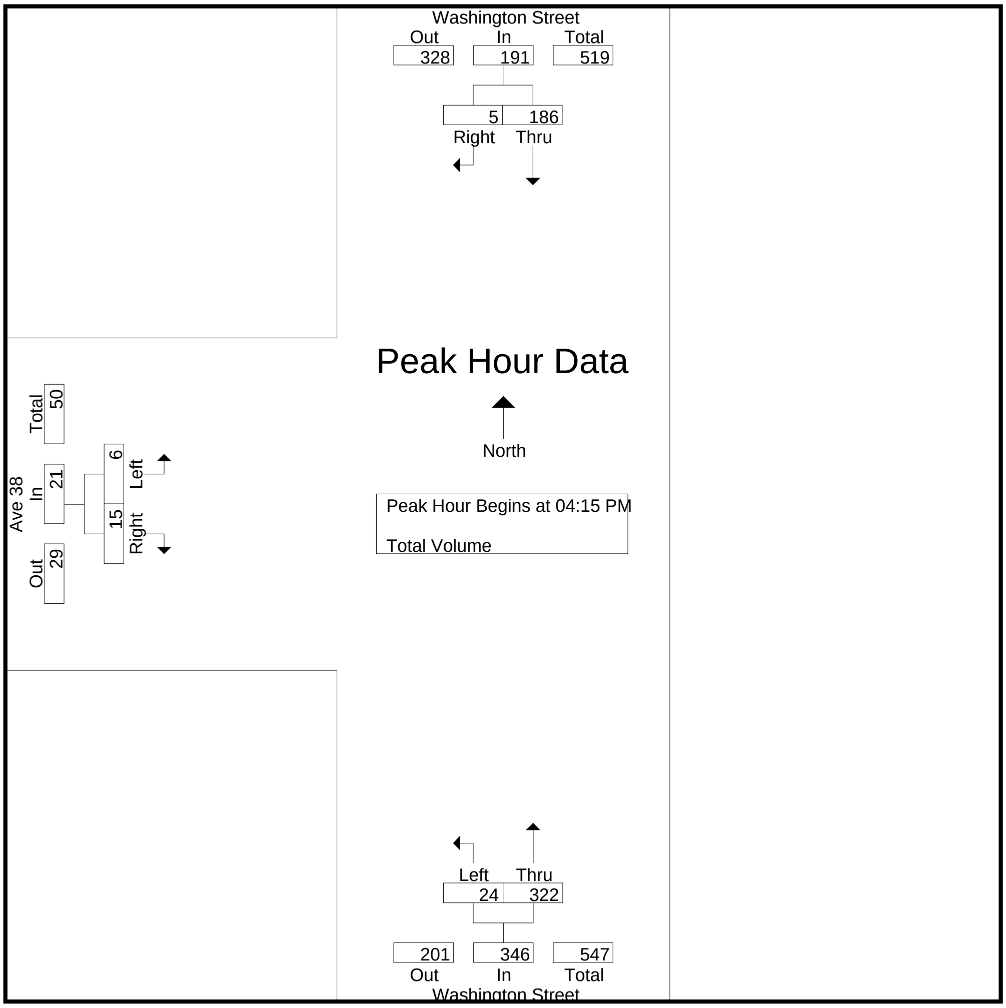
Groups Printed- Total Volume

	Washington Street Southbound			Washington Street Northbound			Ave 38 Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	41	3	44	0	56	56	3	3	6	106
04:15 PM	47	1	48	5	63	68	2	2	4	120
04:30 PM	61	0	61	3	69	72	1	7	8	141
04:45 PM	45	3	48	10	111	121	2	4	6	175
Total	194	7	201	18	299	317	8	16	24	542
05:00 PM	33	1	34	6	79	85	1	2	3	122
05:15 PM	28	1	29	1	63	64	2	3	5	98
05:30 PM	27	1	28	5	55	60	3	0	3	91
05:45 PM	31	1	32	6	63	69	2	0	2	103
Total	119	4	123	18	260	278	8	5	13	414
06:00 PM	25	2	27	1	63	64	1	2	3	94
06:15 PM	15	0	15	0	26	26	1	1	2	43
06:30 PM	40	0	40	0	28	28	4	1	5	73
06:45 PM	26	0	26	1	32	33	0	2	2	61
Total	106	2	108	2	149	151	6	6	12	271
Grand Total	419	13	432	38	708	746	22	27	49	1227
Apprch %	97	3		5.1	94.9		44.9	55.1		
Total %	34.1	1.1	35.2	3.1	57.7	60.8	1.8	2.2	4	

	Washington Street Southbound			Washington Street Northbound			Ave 38 Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	47	1	48	5	63	68	**2**	2	4	120
04:30 PM	**61**	0	**61**	3	69	72	1	**7**	**8**	141
04:45 PM	45	**3**	48	**10**	**111**	**121**	2	4	6	**175**
05:00 PM	33	1	34	6	79	85	1	2	3	122
Total Volume	186	5	191	24	322	346	6	15	21	558
% App. Total	97.4	2.6		6.9	93.1		28.6	71.4		
PHF	.762	.417	.783	.600	.725	.715	.750	.536	.656	.797

County of Riverside
N/S: Washington Street
E/W: Ave 38
Weather: Clear

File Name : 12_CRV_Washington_Ave 38 WPM
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:15 PM			04:00 PM		
+0 mins.	41	**3**	44	5	63	68	**3**	3	6
+15 mins.	47	1	48	3	69	72	2	2	4
+30 mins.	**61**	0	**61**	**10**	**111**	**121**	1	**7**	**8**
+45 mins.	45	3	48	6	79	85	2	4	6
Total Volume	194	7	201	24	322	346	8	16	24
% App. Total	96.5	3.5		6.9	93.1		33.3	66.7	
PHF	.795	.583	.824	.600	.725	.715	.667	.571	.750

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Washington Street
E/W: Ave 38
Weather: Clear

File Name : 12_CRV_Washington_Ave 38 WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Washington Street Southbound			Washington Street Northbound			Ave 38 Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
09:00 PM	4	0	4	0	18	18	0	0	0	22
09:15 PM	12	0	12	0	9	9	0	1	1	22
09:30 PM	7	1	8	0	6	6	0	0	0	14
09:45 PM	5	1	6	0	14	14	0	0	0	20
Total	28	2	30	0	47	47	0	1	1	78
10:00 PM	3	1	4	0	5	5	0	1	1	10
10:15 PM	5	0	5	0	5	5	0	0	0	10
10:30 PM	7	0	7	0	9	9	0	0	0	16
10:45 PM	2	0	2	0	4	4	0	0	0	6
Total	17	1	18	0	23	23	0	1	1	42
11:00 PM	1	0	1	0	3	3	0	0	0	4
11:15 PM	1	0	1	0	4	4	0	0	0	5
11:30 PM	3	1	4	0	2	2	0	0	0	6
11:45 PM	2	0	2	0	3	3	1	0	1	6
Total	7	1	8	0	12	12	1	0	1	21
Grand Total	52	4	56	0	82	82	1	2	3	141
Apprch %	92.9	7.1		0	100		33.3	66.7		
Total %	36.9	2.8	39.7	0	58.2	58.2	0.7	1.4	2.1	

	Washington Street Southbound			Washington Street Northbound			Ave 38 Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	4	0	4	0	**18**	**18**	0	0	0	**22**
09:15 PM	**12**	0	**12**	0	9	9	0	**1**	**1**	22
09:30 PM	7	**1**	8	0	6	6	0	0	0	14
09:45 PM	5	1	6	0	14	14	0	0	0	20
Total Volume	28	2	30	0	47	47	0	1	1	78
% App. Total	93.3	6.7		0	100		0	100		
PHF	.583	.500	.625	.000	.653	.653	.000	.250	.250	.886

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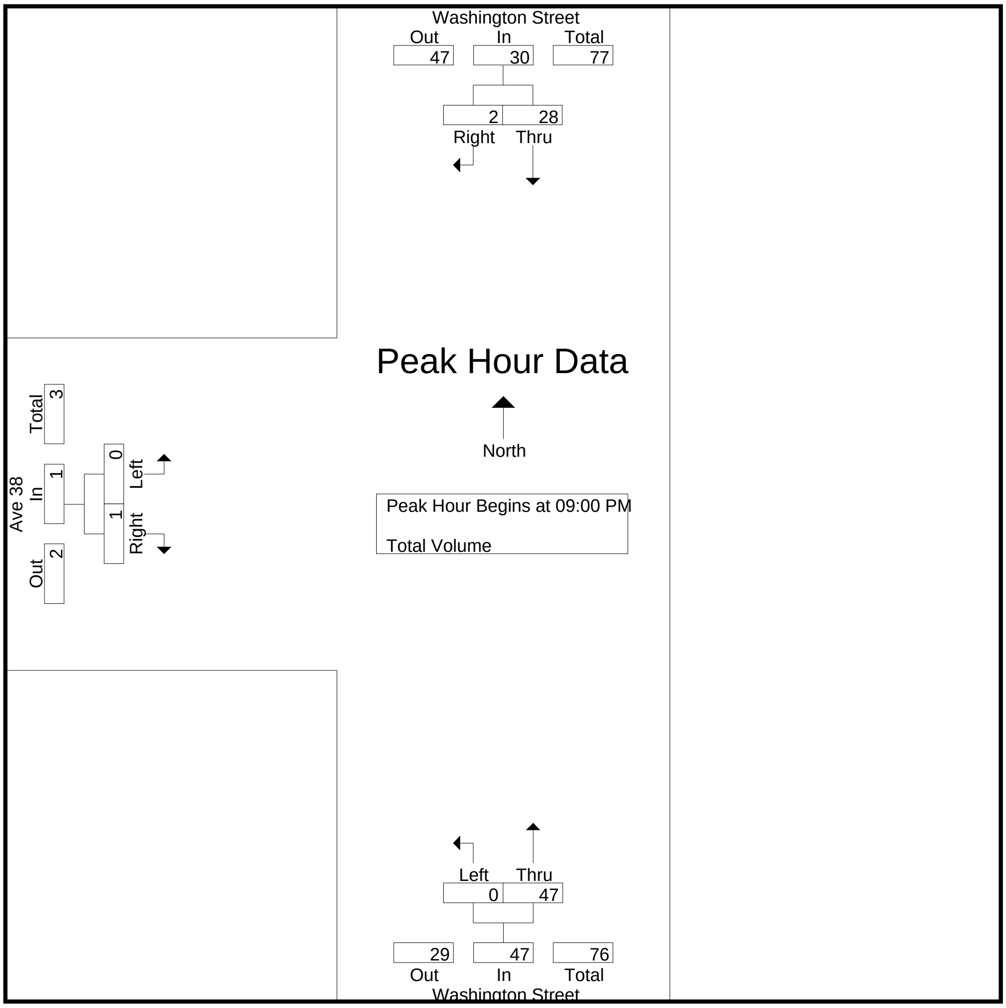
County of Riverside
N/S: Washington Street
E/W: Ave 38
Weather: Clear

File Name : 12_CRV_Washington_Ave 38 WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:15 PM		
+0 mins.	4	0	4	0	**18**	**18**	0	**1**	**1**
+15 mins.	**12**	0	**12**	0	9	9	0	0	0
+30 mins.	7	**1**	8	0	6	6	0	0	0
+45 mins.	5	1	6	0	14	14	0	1	1
Total Volume	28	2	30	0	47	47	0	2	2
% App. Total	93.3	6.7		0	100		0	100	
PHF	.583	.500	.625	.000	.653	.653	.000	.500	.500

INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rancho Mirage	PROJECT #:	SC1279
Thu, Apr 6, 17	NORTH & SOUTH:	Washington	LOCATION #:	22
	EAST & WEST:	Varner	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

	NORTHBOUND Washington			SOUTHBOUND Washington			EASTBOUND Varner			WESTBOUND Varner			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2.5	1.5	2	3	0	1	2	0	2	1.5	1.5	
AM 7:00 AM	78	69	147	10	76	9	1	13	16	161	37	48	665
7:15 AM	113	77	220	13	91	8	2	10	21	196	60	56	867
7:30 AM	135	110	184	24	113	25	4	17	24	214	61	68	979
7:45 AM	110	115	254	19	123	17	10	19	44	212	72	73	1,068
8:00 AM	82	105	230	29	98	17	10	16	32	156	55	47	877
8:15 AM	88	127	197	32	103	29	6	19	13	183	37	66	900
8:30 AM	82	95	154	31	133	25	6	9	23	177	47	50	832
8:45 AM	90	142	165	24	109	35	8	14	18	158	50	60	873
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	778	840	1,551	182	846	165	47	117	191	1,457	419	468	7,061
APPROACH %	25%	27%	49%	15%	71%	14%	13%	33%	54%	62%	18%	20%	
APP/DEPART	3,169	/	1,355	1,193	/	2,491	355	/	1,853	2,344	/	1,362	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	415	457	865	104	437	88	30	71	113	765	225	254	3,824
APPROACH %	24%	26%	50%	17%	69%	14%	14%	33%	53%	61%	18%	20%	
PEAK HR FACTOR		0.907			0.959			0.733			0.871		0.895
APP/DEPART	1,737	/	741	629	/	1,314	214	/	1,041	1,244	/	728	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	86	188	203	38	132	39	13	36	29	150	41	53	1,008
4:15 PM	90	228	201	55	149	33	7	29	21	146	48	64	1,071
4:30 PM	92	198	150	51	130	31	9	34	43	164	47	47	996
4:45 PM	90	215	171	49	147	29	16	39	36	102	38	54	986
5:00 PM	79	180	180	51	156	45	11	30	36	135	29	58	990
5:15 PM	83	181	162	62	138	21	17	20	27	143	47	62	963
5:30 PM	81	170	158	57	126	47	15	43	33	120	38	47	935
5:45 PM	100	186	200	60	136	27	11	27	33	124	68	44	1,016
VOLUMES	701	1,546	1,425	423	1,114	272	99	258	258	1,084	356	429	7,965
APPROACH %	19%	42%	39%	23%	62%	15%	16%	42%	42%	58%	19%	23%	
APP/DEPART	3,672	/	2,074	1,809	/	2,456	615	/	2,107	1,869	/	1,328	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	358	829	725	193	558	132	45	138	129	562	174	218	4,061
APPROACH %	19%	43%	38%	22%	63%	15%	14%	44%	41%	59%	18%	23%	
PEAK HR FACTOR		0.921			0.931			0.857			0.924		0.948
APP/DEPART	1,912	/	1,092	883	/	1,250	312	/	1,056	954	/	663	0

U-TURNS and **RTOR**

	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES	0	0	0	0		0	0	0	0
7:00 AM	0	0	0	1	1	74	1	9	18
7:15 AM	0	0	0	0	0	139	3	13	22
7:30 AM	0	0	0	1	1	86	16	16	30
7:45 AM	0	0	0	0	0	109	10	29	28
8:00 AM	0	0	0	0	0	105	4	18	35
8:15 AM	0	0	0	0	0	63	6	8	29
8:30 AM	0	0	0	1	1	59	9	14	21
8:45 AM	0	0	0	0	0	44	8	11	15
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	3	3	679	57	118	198
PEAK HR VOLUMES						363	36	71	122
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	64	7	17	27
4:15 PM	0	0	0	0	0	49	9	15	32
4:30 PM	0	0	0	0	0	38	6	32	13
4:45 PM	1	0	0	0	1	52	12	20	31
5:00 PM	0	0	0	1	1	62	12	29	39
5:15 PM	0	0	0	0	0	47	3	19	31
5:30 PM	0	0	0	0	0	39	16	23	23
5:45 PM	0	0	0	0	0	66	8	18	21
VOLUMES	1	0	0	1	2	417	73	173	217
PEAK HR VOLUMES						203	34	84	103

Washington

NORTH SIDE

Varner WEST SIDE EAST SIDE **Varner**

SOUTH SIDE

Washington

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
7:15 AM	14	6	0	0	20	0	0	0	0	0	14	6	0	0	20
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	2	0	0	1	3	2	0	0	1	3	0	0	0	0	0
8:00 AM	1	1	0	0	2	1	0	0	0	1	0	1	0	0	1
8:15 AM	2	1	0	0	3	0	0	0	0	0	2	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	4	0	0	0	4	2	0	0	0	2	2	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	23	9	0	1	33	5	0	0	1	6	18	9	0	0	27
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	1	2	0	0	0	0	0	1	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	0	0	1	4	2	0	0	0	2	1	0	0	1	2

AimTD LLC

TURNING MOVEMENT COUNTS

Rancho Mirage

SC1279

ALL HOURS

Washington

TOTAL	3,002	437	1,960	605
PM	1,809	272	1,114	423
AM	1,193	165	846	182

TOTAL	3,429
PM	2,074
AM	1,355

Varner

TOTAL	PM	AM
2,690	1,328	1,362

TOTAL	PM	AM
146	99	47
375	258	117
449	258	191
970	615	355

Varner

AM	PM	TOTAL
2,344	1,869	4,213
468	429	897
419	356	775
1,457	1,084	2,541

AM	PM	TOTAL
1,853	2,107	3,960

Washington

	2,491
	2,456
	4,947

AM	778	840	1,551	3,169
PM	701	1,546	1,425	3,672
TOTAL	1,479	2,386	2,976	6,841

PEAK HOUR

AM 7:30 AM

PM 4:00 PM

Washington

TOTAL	1,512	220	995	297
PM	883	132	558	193
AM	629	88	437	104

TOTAL	1,833
PM	1,092
AM	741

Varner

TOTAL	PM	AM
1,391	663	728

TOTAL	PM	AM
75	45	30
209	138	71
242	129	113
526	312	214

Varner

AM	PM	TOTAL
1,244	954	2,198
254	218	472
225	174	399
765	562	1,327

AM	PM	TOTAL
1,041	1,056	2,097

Washington

	1,314
	1,250
	2,564

AM	415	457	865	1,737
PM	358	829	725	1,912
Total	773	1,286	1,590	3,649

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Washington Street
E/W: Varner Road
Weather: Clear

File Name : 13_CRV_Washington_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Washington Street Southbound				Varner Road Westbound				Washington Street Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	5	14	6	25	40	4	14	58	24	22	65	111	0	7	1	8	202
09:15 PM	6	12	5	23	40	12	12	64	18	19	41	78	1	3	2	6	171
09:30 PM	5	15	1	21	16	8	4	28	18	15	38	71	1	5	7	13	133
09:45 PM	2	16	1	19	39	5	13	57	17	16	39	72	2	8	4	14	162
Total	18	57	13	88	135	29	43	207	77	72	183	332	4	23	14	41	668
10:00 PM	4	11	2	17	28	8	2	38	26	12	22	60	0	9	8	17	132
10:15 PM	5	13	3	21	17	11	4	32	21	15	20	56	1	4	3	8	117
10:30 PM	4	11	1	16	25	6	8	39	16	12	27	55	0	4	7	11	121
10:45 PM	3	5	1	9	12	10	2	24	8	11	18	37	0	2	2	4	74
Total	16	40	7	63	82	35	16	133	71	50	87	208	1	19	20	40	444
11:00 PM	2	5	0	7	18	9	3	30	6	5	19	30	0	2	3	5	72
11:15 PM	0	2	0	2	9	4	2	15	8	9	19	36	0	1	7	8	61
11:30 PM	1	3	2	6	8	2	2	12	4	5	14	23	0	2	5	7	48
11:45 PM	2	1	1	4	10	6	3	19	6	6	12	24	0	2	6	8	55
Total	5	11	3	19	45	21	10	76	24	25	64	113	0	7	21	28	236
Grand Total	39	108	23	170	262	85	69	416	172	147	334	653	5	49	55	109	1348
Apprch %	22.9	63.5	13.5		63	20.4	16.6		26.3	22.5	51.1		4.6	45	50.5		
Total %	2.9	8	1.7	12.6	19.4	6.3	5.1	30.9	12.8	10.9	24.8	48.4	0.4	3.6	4.1	8.1	

	Washington Street Southbound				Varner Road Westbound				Washington Street Northbound				Varner Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	5	14	**6**	**25**	**40**	4	**14**	58	**24**	**22**	**65**	**111**	0	7	1	8	**202**
09:15 PM	**6**	12	5	23	40	**12**	12	**64**	18	19	41	78	1	3	2	6	171
09:30 PM	5	15	1	21	16	8	4	28	18	15	38	71	1	5	**7**	13	133
09:45 PM	2	**16**	1	19	39	5	13	57	17	16	39	72	**2**	**8**	4	**14**	162
Total Volume	18	57	13	88	135	29	43	207	77	72	183	332	4	23	14	41	668
% App. Total	20.5	64.8	14.8		65.2	14	20.8		23.2	21.7	55.1		9.8	56.1	34.1		
PHF	.750	.891	.542	.880	.844	.604	.768	.809	.802	.818	.704	.748	.500	.719	.500	.732	.827

Counts Unlimited
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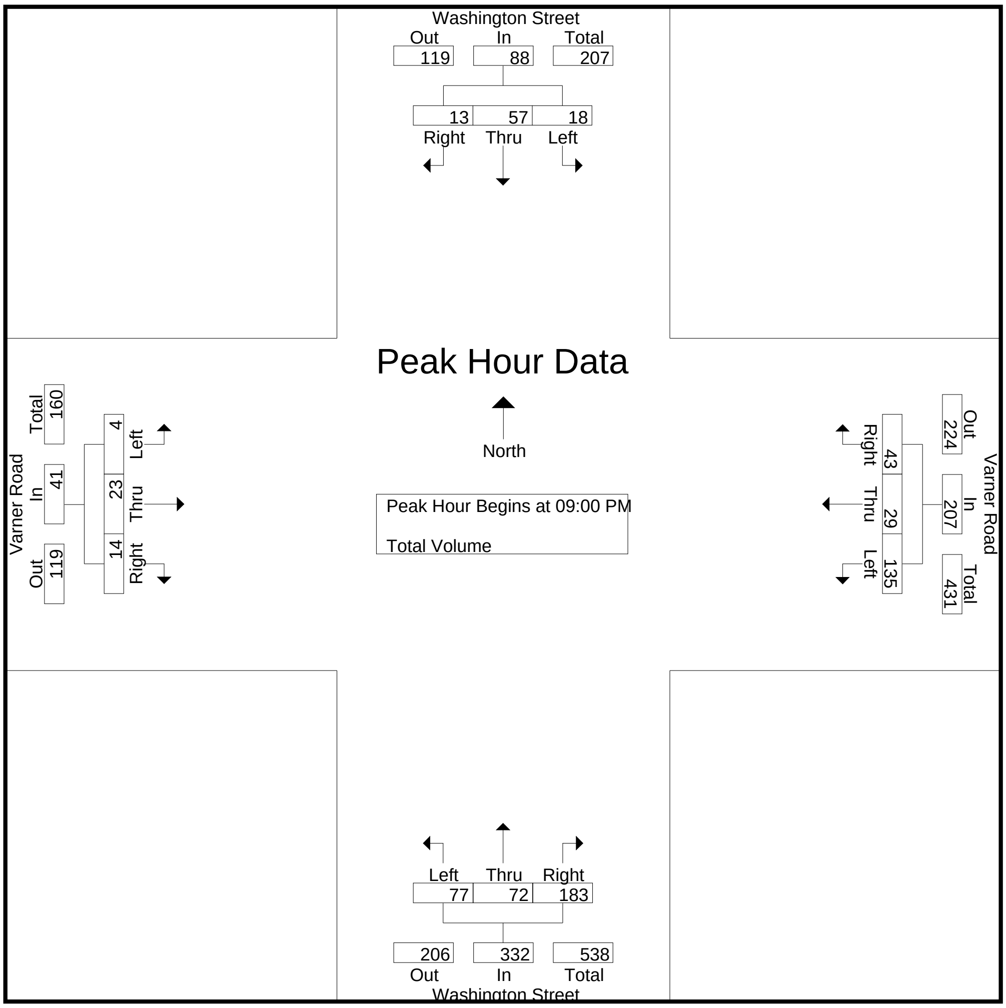
County of Riverside
N/S: Washington Street
E/W: Varner Road
Weather: Clear

File Name : 13_CRV_Washington_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:30 PM			
+0 mins.	5	14	**6**	**25**	**40**	4	**14**	58	**24**	**22**	**65**	**111**	1	5	7	13
+15 mins.	**6**	12	5	23	40	**12**	12	**64**	18	19	41	78	**2**	8	4	14
+30 mins.	5	15	1	21	16	8	4	28	18	15	38	71	0	**9**	**8**	**17**
+45 mins.	2	**16**	1	19	39	5	13	57	17	16	39	72	1	4	3	8
Total Volume	18	57	13	88	135	29	43	207	77	72	183	332	4	26	22	52
% App. Total	20.5	64.8	14.8		65.2	14	20.8		23.2	21.7	55.1		7.7	50	42.3	
PHF	.750	.891	.542	.880	.844	.604	.768	.809	.802	.818	.704	.748	.500	.722	.688	.765

Counts Unlimited
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Corona, CA 92878
(951) 268-6268

City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	56	237	0	293	0	0	0	0	0	315	87	402	64	0	186	250	945
04:15 PM	47	241	0	288	0	0	0	0	0	346	71	417	48	0	163	211	916
04:30 PM	54	251	0	305	0	0	0	0	0	347	98	445	49	0	172	221	971
04:45 PM	39	211	0	250	0	0	0	0	0	326	80	406	56	0	174	230	886
Total	196	940	0	1136	0	0	0	0	0	1334	336	1670	217	0	695	912	3718
05:00 PM	59	252	0	311	0	0	0	0	0	322	87	409	46	1	146	193	913
05:15 PM	41	204	0	245	0	0	0	0	0	330	108	438	48	1	148	197	880
05:30 PM	52	210	0	262	0	0	0	0	0	276	79	355	49	1	174	224	841
05:45 PM	24	154	0	178	0	0	0	0	0	237	71	308	41	2	154	197	683
Total	176	820	0	996	0	0	0	0	0	1165	345	1510	184	5	622	811	3317
06:00 PM	25	135	0	160	0	0	0	0	0	198	52	250	31	0	114	145	555
06:15 PM	18	124	0	142	0	0	0	0	0	184	70	254	40	1	112	153	549
06:30 PM	26	105	0	131	0	0	0	0	0	166	50	216	25	1	108	134	481
06:45 PM	10	109	0	119	0	0	0	0	0	157	47	204	37	0	110	147	470
Total	79	473	0	552	0	0	0	0	0	705	219	924	133	2	444	579	2055
Grand Total	451	2233	0	2684	0	0	0	0	0	3204	900	4104	534	7	1761	2302	9090
Apprch %	16.8	83.2	0		0	0	0		0	78.1	21.9		23.2	0.3	76.5		
Total %	5	24.6	0	29.5	0	0	0	0	0	35.2	9.9	45.1	5.9	0.1	19.4	25.3	
Passenger Vehicles	433	2204	0	2637	0	0	0	0	0	3100	880	3980	526	7	1739	2272	8889
% Passenger Vehicles	96	98.7	0	98.2	0	0	0	0	0	96.8	97.8	97	98.5	100	98.8	98.7	97.8
Large 2 Axle Vehicles	12	26	0	38	0	0	0	0	0	88	13	101	8	0	11	19	158
% Large 2 Axle Vehicles	2.7	1.2	0	1.4	0	0	0	0	0	2.7	1.4	2.5	1.5	0	0.6	0.8	1.7
3 Axle Vehicles	0	2	0	2	0	0	0	0	0	6	4	10	0	0	2	2	14
% 3 Axle Vehicles	0	0.1	0	0.1	0	0	0	0	0	0.2	0.4	0.2	0	0	0.1	0.1	0.2
4+ Axle Trucks	6	1	0	7	0	0	0	0	0	10	3	13	0	0	9	9	29
% 4+ Axle Trucks	1.3	0	0	0.3	0	0	0	0	0	0.3	0.3	0.3	0	0	0.5	0.4	0.3

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**56**	237	0	293	0	0	0	0	0	315	87	402	**64**	0	**186**	**250**	945
04:15 PM	47	241	0	288	0	0	0	0	0	346	71	417	48	0	163	211	916
04:30 PM	54	**251**	0	**305**	0	0	0	0	0	**347**	**98**	**445**	49	0	172	221	**971**
04:45 PM	39	211	0	250	0	0	0	0	0	326	80	406	56	0	174	230	886
Total Volume	196	940	0	1136	0	0	0	0	0	1334	336	1670	217	0	695	912	3718
% App. Total	17.3	82.7	0		0	0	0		0	79.9	20.1		23.8	0	76.2		
PHF	.875	.936	.000	.931	.000	.000	.000	.000	.000	.961	.857	.938	.848	.000	.934	.912	.957

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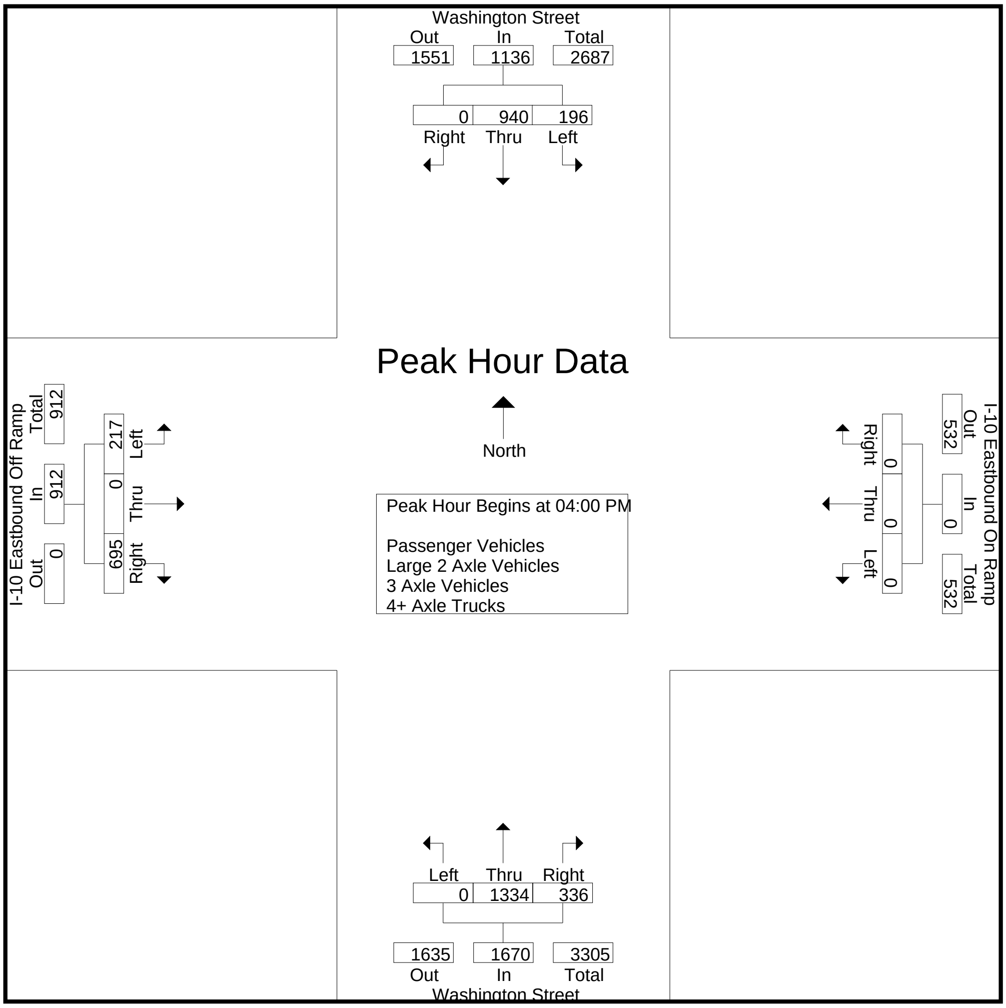
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				04:30 PM				04:00 PM			
+0 mins.	47	241	0	288	0	0	0	0	0	**347**	98	**445**	**64**	0	**186**	**250**
+15 mins.	54	251	0	305	0	0	0	0	0	326	80	406	48	0	163	211
+30 mins.	39	211	0	250	0	0	0	0	0	322	87	409	49	0	172	221
+45 mins.	**59**	**252**	0	**311**	0	0	0	0	0	330	**108**	438	56	0	174	230
Total Volume	199	955	0	1154	0	0	0	0	0	1325	373	1698	217	0	695	912
% App. Total	17.2	82.8	0		0	0	0		0	78	22		23.8	0	76.2	
PHF	.843	.947	.000	.928	.000	.000	.000	.000	.000	.955	.863	.954	.848	.000	.934	.912

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	52	231	0	283	0	0	0	0	0	302	86	388	62	0	181	243	914
04:15 PM	45	234	0	279	0	0	0	0	0	333	71	404	48	0	161	209	892
04:30 PM	46	250	0	296	0	0	0	0	0	336	96	432	49	0	169	218	946
04:45 PM	38	209	0	247	0	0	0	0	0	311	78	389	56	0	172	228	864
Total	181	924	0	1105	0	0	0	0	0	1282	331	1613	215	0	683	898	3616
05:00 PM	58	251	0	309	0	0	0	0	0	311	82	393	44	1	145	190	892
05:15 PM	40	202	0	242	0	0	0	0	0	318	105	423	48	1	146	195	860
05:30 PM	52	205	0	257	0	0	0	0	0	265	78	343	48	1	173	222	822
05:45 PM	24	154	0	178	0	0	0	0	0	231	70	301	41	2	153	196	675
Total	174	812	0	986	0	0	0	0	0	1125	335	1460	181	5	617	803	3249
06:00 PM	25	135	0	160	0	0	0	0	0	196	52	248	31	0	112	143	551
06:15 PM	18	122	0	140	0	0	0	0	0	178	68	246	40	1	112	153	539
06:30 PM	25	103	0	128	0	0	0	0	0	165	47	212	23	1	106	130	470
06:45 PM	10	108	0	118	0	0	0	0	0	154	47	201	36	0	109	145	464
Total	78	468	0	546	0	0	0	0	0	693	214	907	130	2	439	571	2024
Grand Total	433	2204	0	2637	0	0	0	0	0	3100	880	3980	526	7	1739	2272	8889
Apprch %	16.4	83.6	0		0	0	0		0	77.9	22.1		23.2	0.3	76.5		
Total %	4.9	24.8	0	29.7	0	0	0	0	0	34.9	9.9	44.8	5.9	0.1	19.6	25.6	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**52**	231	0	283	0	0	0	0	0	302	86	388	**62**	0	**181**	**243**	914
04:15 PM	45	234	0	279	0	0	0	0	0	333	71	404	48	0	161	209	892
04:30 PM	46	**250**	0	**296**	0	0	0	0	0	**336**	**96**	**432**	49	0	169	218	**946**
04:45 PM	38	209	0	247	0	0	0	0	0	311	78	389	56	0	172	228	864
Total Volume	181	924	0	1105	0	0	0	0	0	1282	331	1613	215	0	683	898	3616
% App. Total	16.4	83.6	0		0	0	0		0	79.5	20.5		23.9	0	76.1		
PHF	.870	.924	.000	.933	.000	.000	.000	.000	.000	.954	.862	.933	.867	.000	.943	.924	.956

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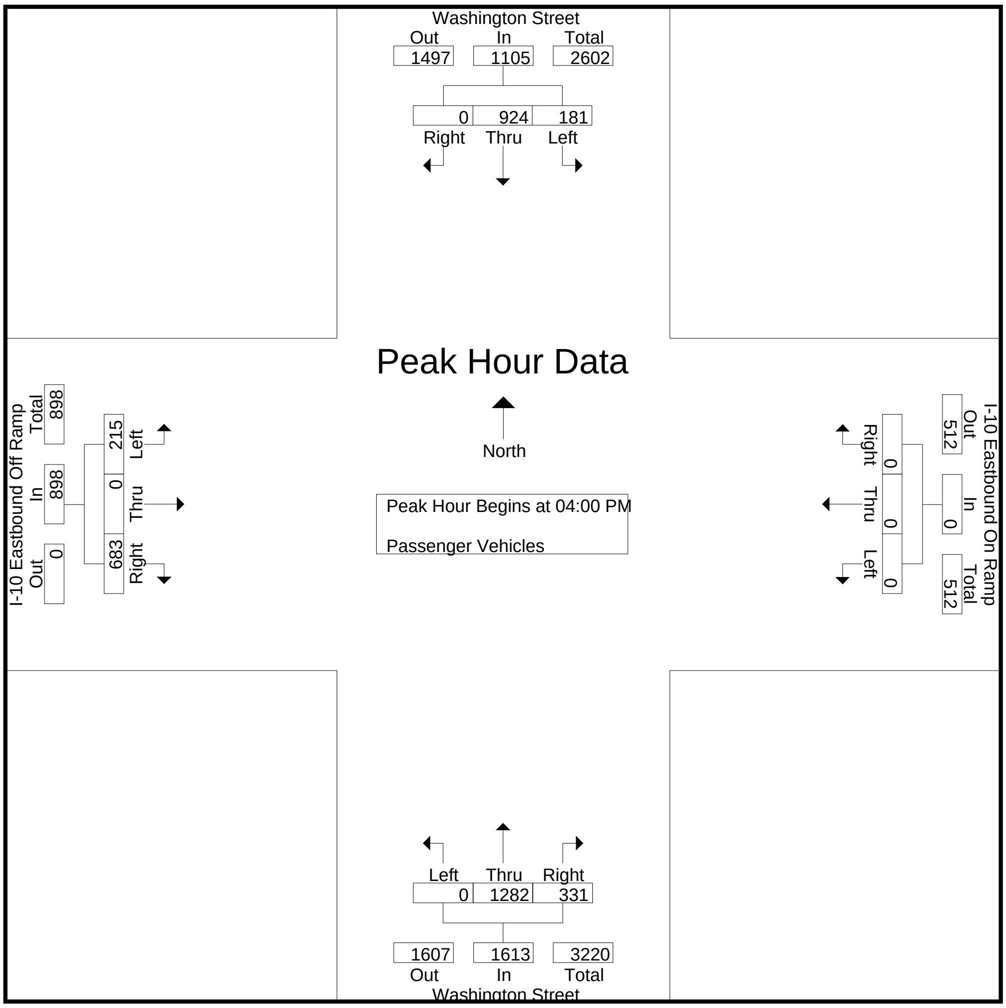
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**52**	231	0	283	0	0	0	0	0	302	86	388	**62**	0	**181**	**243**
+15 mins.	45	234	0	279	0	0	0	0	0	333	71	404	48	0	161	209
+30 mins.	46	**250**	0	**296**	0	0	0	0	0	**336**	**96**	**432**	49	0	169	218
+45 mins.	38	209	0	247	0	0	0	0	0	311	78	389	56	0	172	228
Total Volume	181	924	0	1105	0	0	0	0	0	1282	331	1613	215	0	683	898
% App. Total	16.4	83.6	0		0	0	0		0	79.5	20.5		23.9	0	76.1	
PHF	.870	.924	.000	.933	.000	.000	.000	.000	.000	.954	.862	.933	.867	.000	.943	.924

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	6	0	9	0	0	0	0	0	12	1	13	2	0	3	5	27
04:15 PM	2	4	0	6	0	0	0	0	0	13	0	13	0	0	1	1	20
04:30 PM	4	1	0	5	0	0	0	0	0	11	2	13	0	0	2	2	20
04:45 PM	1	2	0	3	0	0	0	0	0	14	2	16	0	0	0	0	19
Total	10	13	0	23	0	0	0	0	0	50	5	55	2	0	6	8	86
05:00 PM	1	1	0	2	0	0	0	0	0	9	4	13	2	0	1	3	18
05:15 PM	1	2	0	3	0	0	0	0	0	12	0	12	0	0	1	1	16
05:30 PM	0	5	0	5	0	0	0	0	0	8	1	9	1	0	0	1	15
05:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Total	2	8	0	10	0	0	0	0	0	31	5	36	3	0	2	5	51
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:15 PM	0	2	0	2	0	0	0	0	0	6	2	8	0	0	0	0	10
06:30 PM	0	2	0	2	0	0	0	0	0	0	1	1	2	0	1	3	6
06:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	1	0	1	2	4
Total	0	5	0	5	0	0	0	0	0	7	3	10	3	0	3	6	21
Grand Total	12	26	0	38	0	0	0	0	0	88	13	101	8	0	11	19	158
Apprch %	31.6	68.4	0		0	0	0		0	87.1	12.9		42.1	0	57.9		
Total %	7.6	16.5	0	24.1	0	0	0	0	0	55.7	8.2	63.9	5.1	0	7	12	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	3	**6**	0	**9**	0	0	0	0	0	12	1	13	**2**	0	**3**	**5**	**27**
04:15 PM	2	4	0	6	0	0	0	0	0	13	0	13	0	0	1	1	20
04:30 PM	**4**	1	0	5	0	0	0	0	0	11	**2**	13	0	0	2	2	20
04:45 PM	1	2	0	3	0	0	0	0	0	**14**	2	**16**	0	0	0	0	19
Total Volume	10	13	0	23	0	0	0	0	0	50	5	55	2	0	6	8	86
% App. Total	43.5	56.5	0		0	0	0		0	90.9	9.1		25	0	75		
PHF	.625	.542	.000	.639	.000	.000	.000	.000	.000	.893	.625	.859	.250	.000	.500	.400	.796

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
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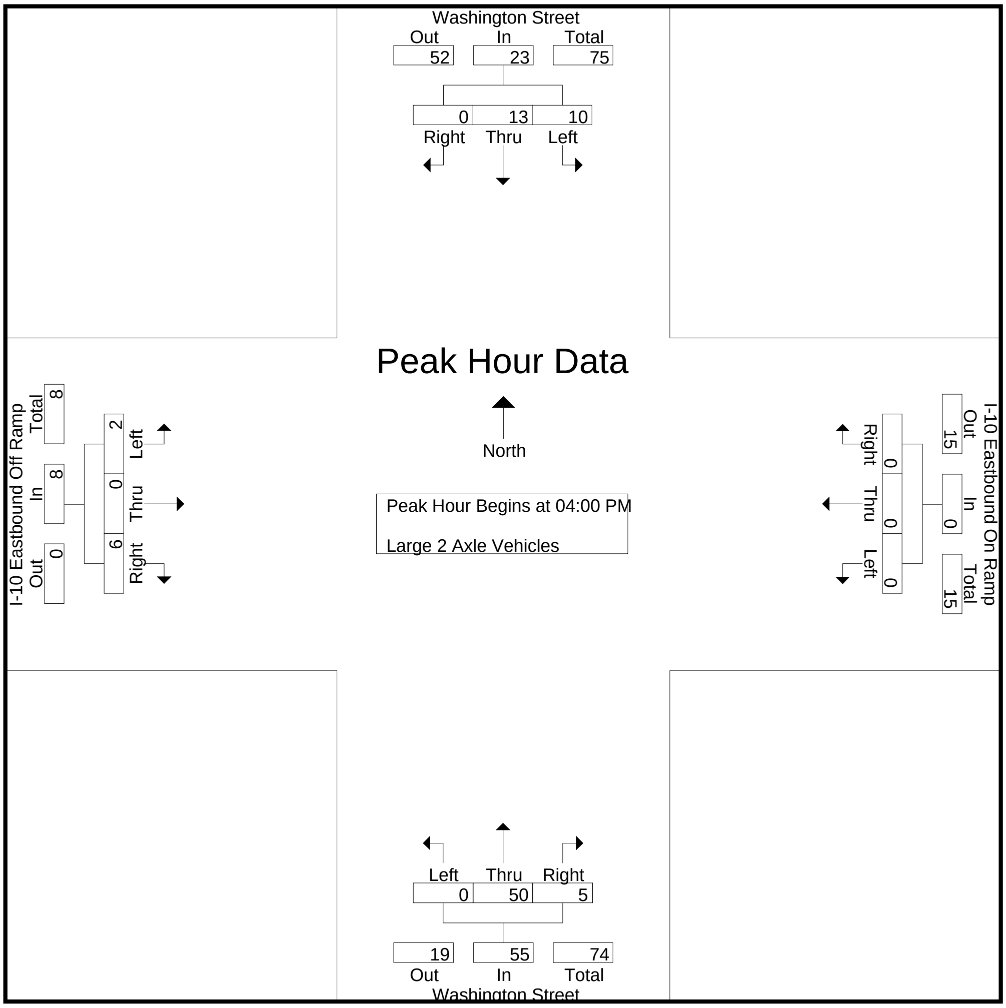

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	3	**6**	0	**9**	0	0	0	0	0	12	1	13	**2**	0	**3**	**5**
+15 mins.	2	4	0	6	0	0	0	0	0	13	0	13	0	0	1	1
+30 mins.	**4**	1	0	5	0	0	0	0	0	11	**2**	13	0	0	2	2
+45 mins.	1	2	0	3	0	0	0	0	0	**14**	2	**16**	0	0	0	0
Total Volume	10	13	0	23	0	0	0	0	0	50	5	55	2	0	6	8
% App. Total	43.5	56.5	0		0	0	0		0	90.9	9.1		25	0	75	
PHF	.625	.542	.000	.639	.000	.000	.000	.000	.000	.893	.625	.859	.250	.000	.500	.400

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
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Groups Printed- 3 Axle Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	1	1	4
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	3	3	6	0	0	1	1	7
06:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
06:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	4
Grand Total	0	2	0	2	0	0	0	0	0	6	4	10	0	0	2	2	14
Apprch %	0	100	0		0	0	0		0	60	40		0	0	100		
Total %	0	14.3	0	14.3	0	0	0	0	0	42.9	28.6	71.4	0	0	14.3	14.3	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
04:15 PM	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
% App. Total	0	100	0		0	0	0		0	0	0		0	0	100		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.375

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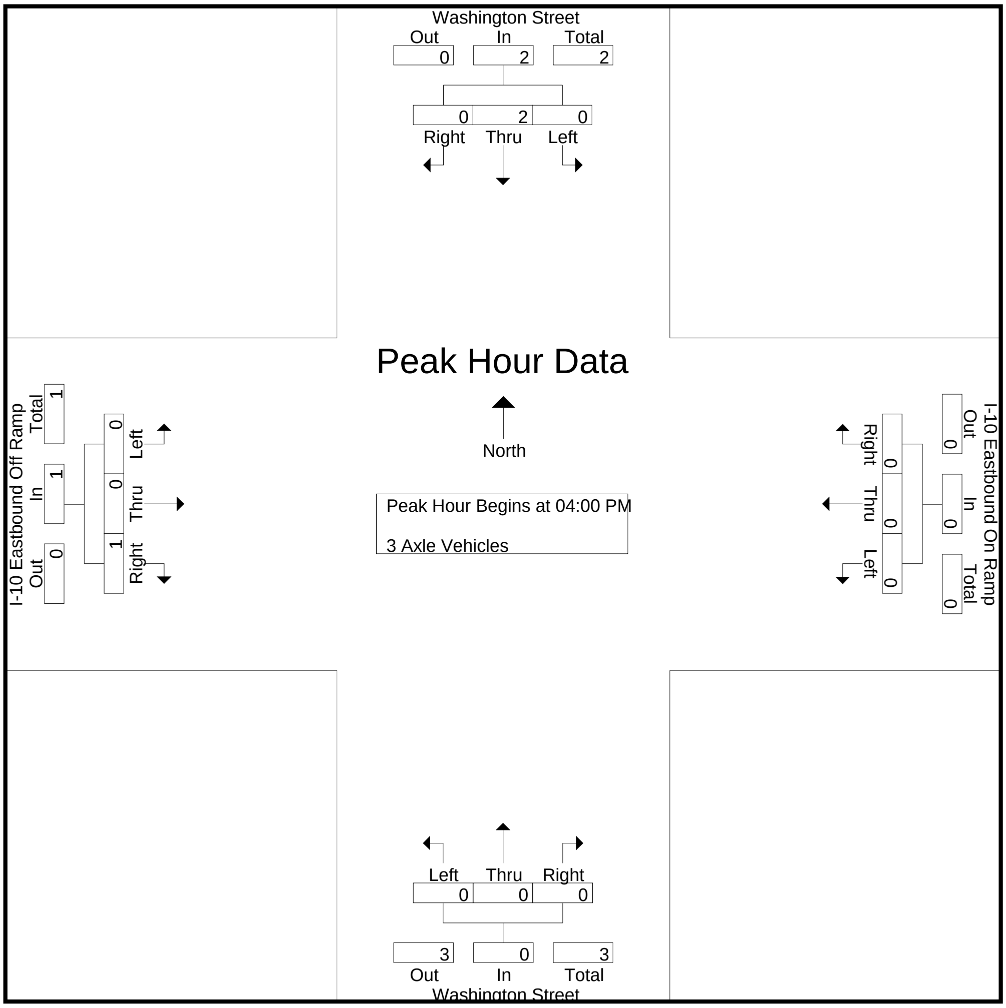
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**
+15 mins.	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	100	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
04:30 PM	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1	1	5
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2	3
Total	5	1	0	6	0	0	0	0	0	2	0	2	0	0	5	5	13
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	1	3
05:45 PM	0	0	0	0	0	0	0	0	0	4	1	5	0	0	1	1	6
Total	0	0	0	0	0	0	0	0	0	6	2	8	0	0	2	2	10
06:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	1	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	3
06:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	1	0	0	1	0	0	0	0	0	2	1	3	0	0	2	2	6
Grand Total	6	1	0	7	0	0	0	0	0	10	3	13	0	0	9	9	29
Apprch %	85.7	14.3	0		0	0	0		0	76.9	23.1		0	0	100		
Total %	20.7	3.4	0	24.1	0	0	0	0	0	34.5	10.3	44.8	0	0	31	31	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	0	0	0	0	0	**1**	0	**1**	0	0	1	1	3
04:15 PM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
04:30 PM	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	1	1	**5**
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	**2**	**2**	3
Total Volume	5	1	0	6	0	0	0	0	0	2	0	2	0	0	5	5	13
% App. Total	83.3	16.7	0		0	0	0		0	100	0		0	0	100		
PHF	.313	.250	.000	.375	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.625	.625	.650

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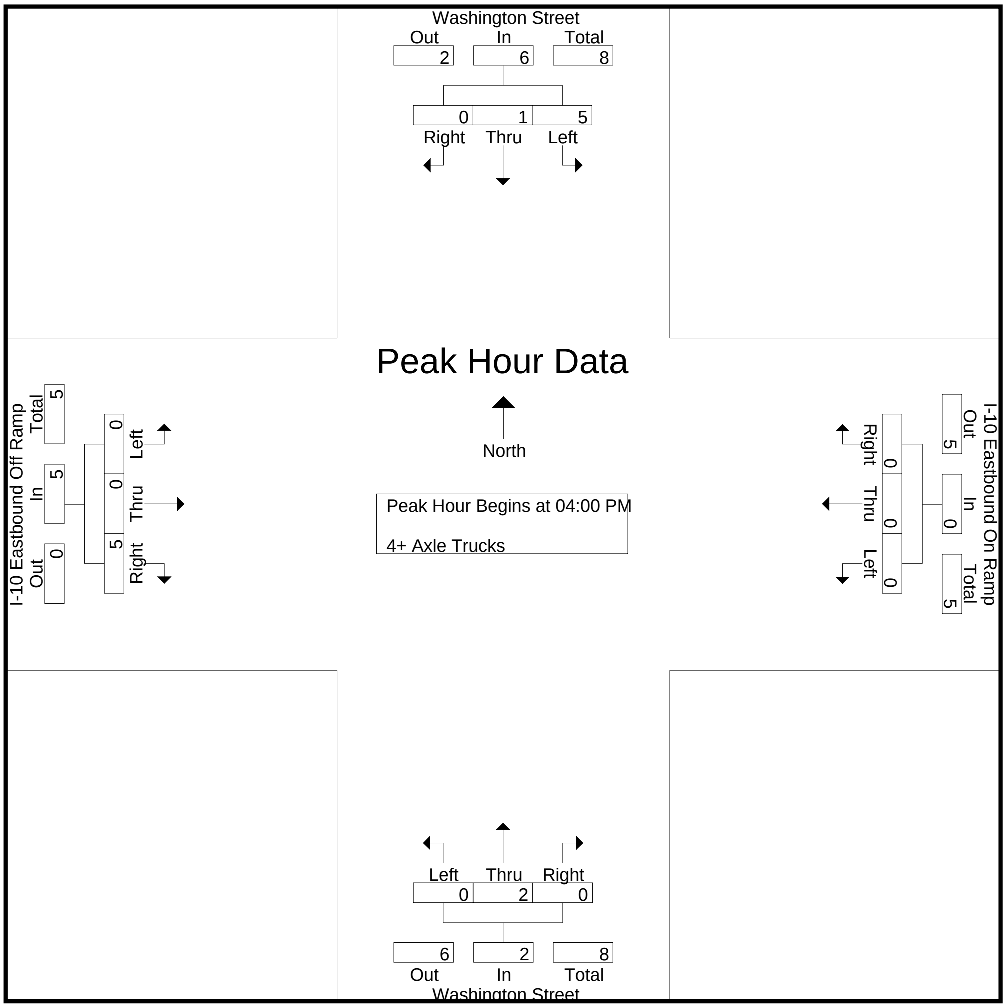
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WPM
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	1	0	0	1	0	0	0	0	0	**1**	0	**1**	0	0	1	1
+15 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	1	1
+30 mins.	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	**2**	**2**
Total Volume	5	1	0	6	0	0	0	0	0	2	0	2	0	0	5	5
% App. Total	83.3	16.7	0		0	0	0		0	100	0		0	0	100	
PHF	.313	.250	.000	.375	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.625	.625

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City of Palm Desert
N/S: Washington Street
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Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	9	67	0	76	0	0	0	0	0	86	22	108	17	0	63	80	264
09:15 PM	7	50	0	57	0	0	0	0	0	94	31	125	15	0	73	88	270
09:30 PM	6	42	0	48	0	0	0	0	0	76	22	98	12	0	56	68	214
09:45 PM	5	35	0	40	0	0	0	0	0	70	24	94	13	1	50	64	198
Total	27	194	0	221	0	0	0	0	0	326	99	425	57	1	242	300	946
10:00 PM	8	54	0	62	0	0	0	0	0	71	28	99	9	0	51	60	221
10:15 PM	3	35	0	38	0	0	0	0	0	62	9	71	9	2	42	53	162
10:30 PM	7	25	0	32	0	0	0	0	0	45	9	54	16	1	55	72	158
10:45 PM	4	34	0	38	0	0	0	0	0	59	16	75	4	0	57	61	174
Total	22	148	0	170	0	0	0	0	0	237	62	299	38	3	205	246	715
11:00 PM	7	22	0	29	0	0	0	0	0	41	5	46	15	0	40	55	130
11:15 PM	8	19	0	27	0	0	0	0	0	35	8	43	5	2	33	40	110
11:30 PM	3	24	0	27	0	0	0	0	0	24	14	38	12	1	30	43	108
11:45 PM	2	18	0	20	0	0	0	0	0	28	6	34	4	0	35	39	93
Total	20	83	0	103	0	0	0	0	0	128	33	161	36	3	138	177	441
Grand Total	69	425	0	494	0	0	0	0	0	691	194	885	131	7	585	723	2102
Apprch %	14	86	0		0	0	0		0	78.1	21.9		18.1	1	80.9		
Total %	3.3	20.2	0	23.5	0	0	0	0	0	32.9	9.2	42.1	6.2	0.3	27.8	34.4	
Passenger Vehicles	68	421	0	489	0	0	0	0	0	673	192	865	124	7	566	697	2051
% Passenger Vehicles	98.6	99.1	0	99	0	0	0	0	0	97.4	99	97.7	94.7	100	96.8	96.4	97.6
Large 2 Axle Vehicles	1	3	0	4	0	0	0	0	0	13	1	14	3	0	7	10	28
% Large 2 Axle Vehicles	1.4	0.7	0	0.8	0	0	0	0	0	1.9	0.5	1.6	2.3	0	1.2	1.4	1.3
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% 3 Axle Vehicles	0	0.2	0	0.2	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	4	1	5	4	0	12	16	21
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0.6	0.5	0.6	3.1	0	2.1	2.2	1

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	**9**	**67**	0	**76**	0	0	0	0	0	86	22	108	**17**	0	63	80	264
09:15 PM	7	50	0	57	0	0	0	0	0	**94**	**31**	**125**	15	0	**73**	**88**	**270**
09:30 PM	6	42	0	48	0	0	0	0	0	76	22	98	12	0	56	68	214
09:45 PM	5	35	0	40	0	0	0	0	0	70	24	94	13	**1**	50	64	198
Total Volume	27	194	0	221	0	0	0	0	0	326	99	425	57	1	242	300	946
% App. Total	12.2	87.8	0		0	0	0		0	76.7	23.3		19	0.3	80.7		
PHF	.750	.724	.000	.727	.000	.000	.000	.000	.000	.867	.798	.850	.838	.250	.829	.852	.876

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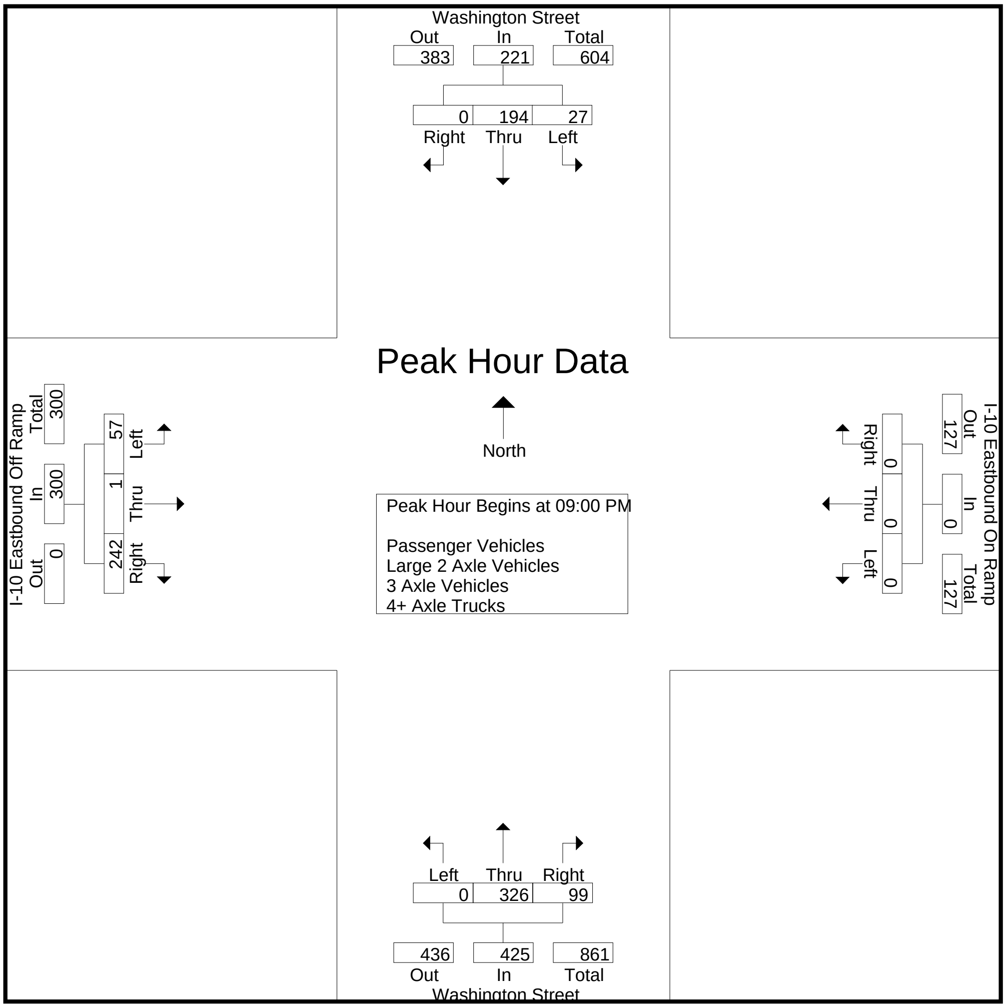
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	**9**	**67**	0	**76**	0	0	0	0	0	86	22	108	**17**	0	63	80
+15 mins.	7	50	0	57	0	0	0	0	0	**94**	**31**	**125**	15	0	**73**	**88**
+30 mins.	6	42	0	48	0	0	0	0	0	76	22	98	12	0	56	68
+45 mins.	5	35	0	40	0	0	0	0	0	70	24	94	13	**1**	50	64
Total Volume	27	194	0	221	0	0	0	0	0	326	99	425	57	1	242	300
% App. Total	12.2	87.8	0		0	0	0		0	76.7	23.3		19	0.3	80.7	
PHF	.750	.724	.000	.727	.000	.000	.000	.000	.000	.867	.798	.850	.838	.250	.829	.852

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Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	9	66	0	75	0	0	0	0	0	84	22	106	17	0	63	80	261
09:15 PM	6	49	0	55	0	0	0	0	0	89	31	120	14	0	72	86	261
09:30 PM	6	42	0	48	0	0	0	0	0	76	22	98	12	0	54	66	212
09:45 PM	5	34	0	39	0	0	0	0	0	69	24	93	13	1	49	63	195
Total	26	191	0	217	0	0	0	0	0	318	99	417	56	1	238	295	929
10:00 PM	8	54	0	62	0	0	0	0	0	69	28	97	9	0	50	59	218
10:15 PM	3	35	0	38	0	0	0	0	0	60	9	69	9	2	42	53	160
10:30 PM	7	25	0	32	0	0	0	0	0	45	9	54	15	1	53	69	155
10:45 PM	4	33	0	37	0	0	0	0	0	58	15	73	3	0	53	56	166
Total	22	147	0	169	0	0	0	0	0	232	61	293	36	3	198	237	699
11:00 PM	7	22	0	29	0	0	0	0	0	38	5	43	14	0	38	52	124
11:15 PM	8	19	0	27	0	0	0	0	0	35	8	43	5	2	31	38	108
11:30 PM	3	24	0	27	0	0	0	0	0	24	14	38	10	1	29	40	105
11:45 PM	2	18	0	20	0	0	0	0	0	26	5	31	3	0	32	35	86
Total	20	83	0	103	0	0	0	0	0	123	32	155	32	3	130	165	423
Grand Total	68	421	0	489	0	0	0	0	0	673	192	865	124	7	566	697	2051
Apprch %	13.9	86.1	0		0	0	0		0	77.8	22.2		17.8	1	81.2		
Total %	3.3	20.5	0	23.8	0	0	0	0	0	32.8	9.4	42.2	6	0.3	27.6	34	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	**9**	**66**	0	**75**	0	0	0	0	0	84	22	106	**17**	0	63	80	**261**
09:15 PM	6	49	0	55	0	0	0	0	0	**89**	**31**	**120**	14	0	**72**	**86**	261
09:30 PM	6	42	0	48	0	0	0	0	0	76	22	98	12	0	54	66	212
09:45 PM	5	34	0	39	0	0	0	0	0	69	24	93	13	**1**	49	63	195
Total Volume	26	191	0	217	0	0	0	0	0	318	99	417	56	1	238	295	929
% App. Total	12	88	0		0	0	0		0	76.3	23.7		19	0.3	80.7		
PHF	.722	.723	.000	.723	.000	.000	.000	.000	.000	.893	.798	.869	.824	.250	.826	.858	.890

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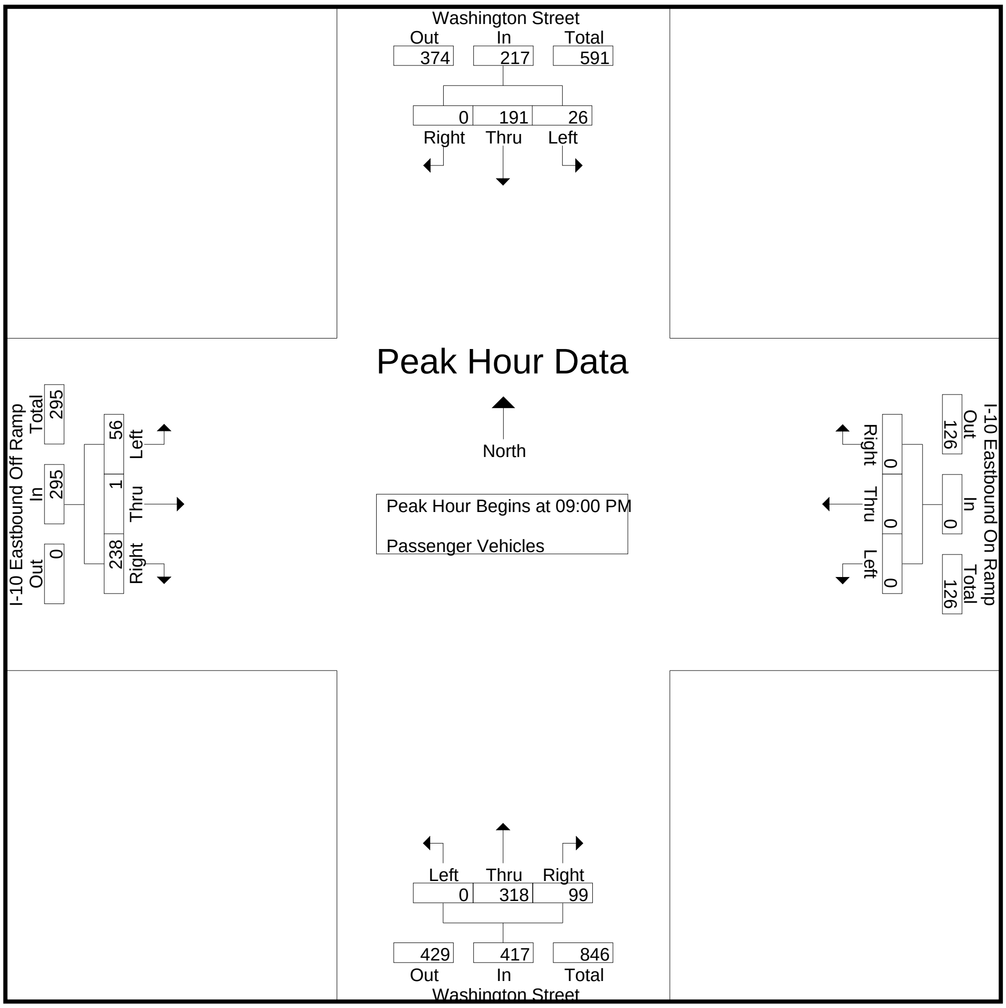
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	**9**	**66**	0	**75**	0	0	0	0	0	84	22	106	**17**	0	63	80
+15 mins.	6	49	0	55	0	0	0	0	0	**89**	**31**	**120**	14	0	**72**	**86**
+30 mins.	6	42	0	48	0	0	0	0	0	76	22	98	12	0	54	66
+45 mins.	5	34	0	39	0	0	0	0	0	69	24	93	13	**1**	49	63
Total Volume	26	191	0	217	0	0	0	0	0	318	99	417	56	1	238	295
% App. Total	12	88	0		0	0	0		0	76.3	23.7		19	0.3	80.7	
PHF	.722	.723	.000	.723	.000	.000	.000	.000	.000	.893	.798	.869	.824	.250	.826	.858

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
09:15 PM	1	1	0	2	0	0	0	0	0	5	0	5	1	0	1	2	9
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	1	2	0	3	0	0	0	0	0	6	0	6	1	0	2	3	12
10:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	1	3
10:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
Total	0	1	0	1	0	0	0	0	0	4	0	4	0	0	3	3	8
11:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	1	3
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
11:45 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	0	3	1	4	2	0	2	4	8
Grand Total	1	3	0	4	0	0	0	0	0	13	1	14	3	0	7	10	28
Apprch %	25	75	0		0	0	0		0	92.9	7.1		30	0	70		
Total %	3.6	10.7	0	14.3	0	0	0	0	0	46.4	3.6	50	10.7	0	25	35.7	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	**1**	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
09:15 PM	**1**	1	0	**2**	0	0	0	0	0	**5**	0	**5**	**1**	0	**1**	**2**	**9**
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	1	2	0	3	0	0	0	0	0	6	0	6	1	0	2	3	12
% App. Total	33.3	66.7	0		0	0	0		0	100	0		33.3	0	66.7		
PHF	.250	.500	.000	.375	.000	.000	.000	.000	.000	.300	.000	.300	.250	.000	.500	.375	.333

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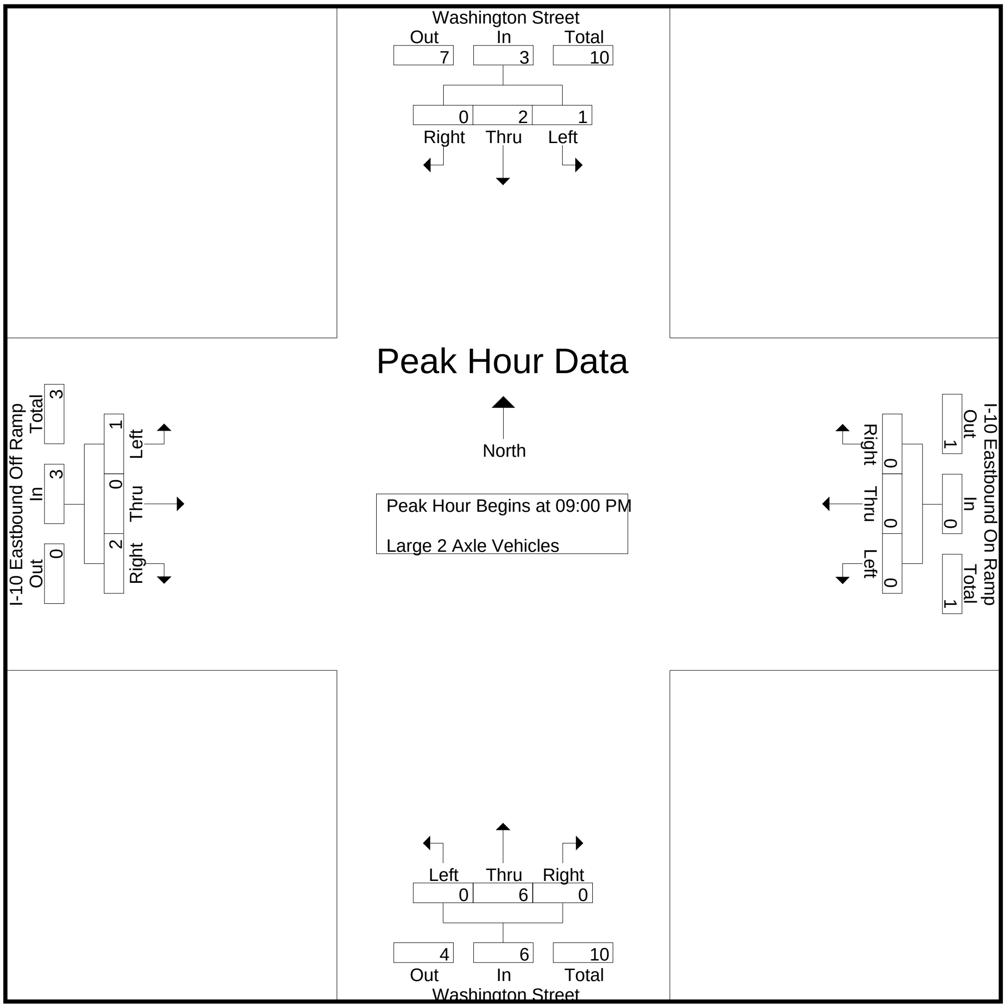
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	**1**	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	**1**	1	0	**2**	0	0	0	0	0	**5**	0	**5**	**1**	0	**1**	**2**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total Volume	1	2	0	3	0	0	0	0	0	6	0	6	1	0	2	3
% App. Total	33.3	66.7	0		0	0	0		0	100	0		33.3	0	66.7	
PHF	.250	.500	.000	.375	.000	.000	.000	.000	.000	.300	.000	.300	.250	.000	.500	.375

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Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	50	0	50	0	0	0	0	0	50	0	50	0	0	0	0	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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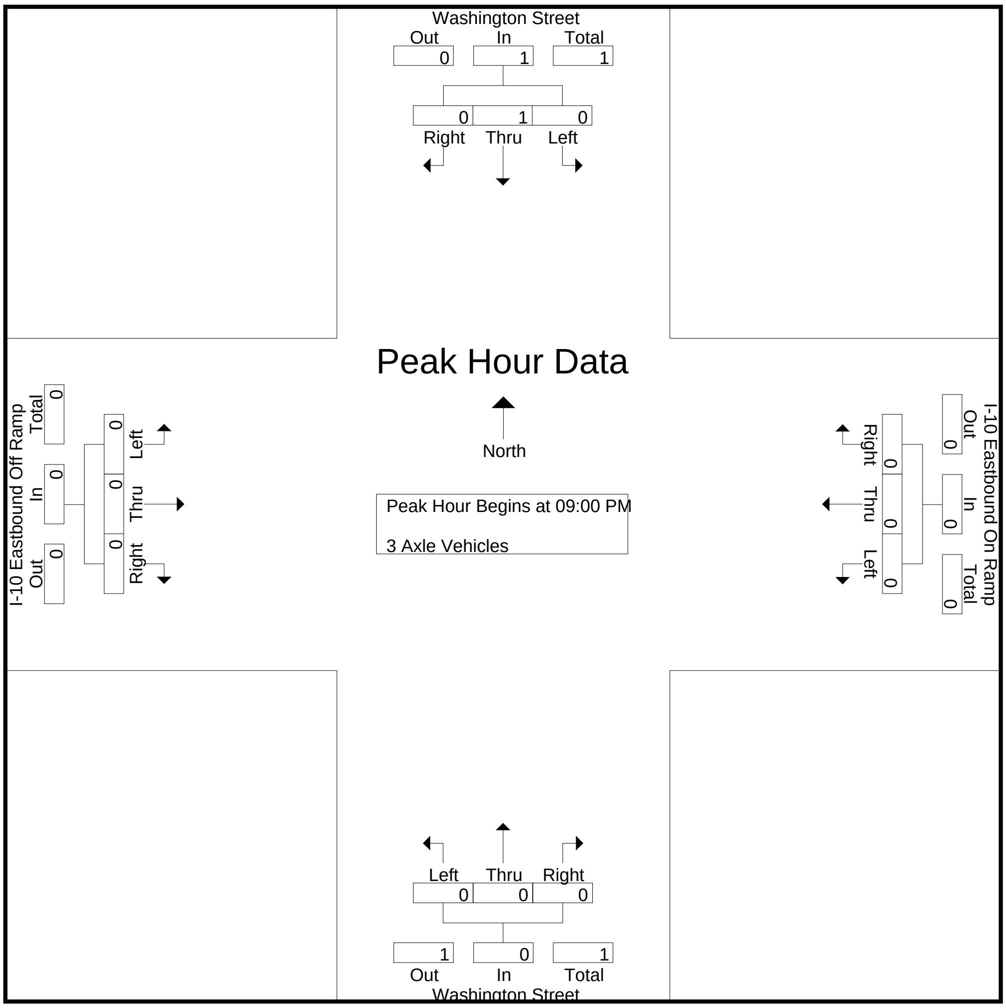
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
09:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2	2	4
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
10:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3	4	5
Total	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	6	7
11:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2	3
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
11:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	3	4
Total	0	0	0	0	0	0	0	0	0	2	0	2	2	0	6	8	10
Grand Total	0	0	0	0	0	0	0	0	0	4	1	5	4	0	12	16	21
Apprch %	0	0	0		0	0	0		0	80	20		25	0	75		
Total %	0	0	0	0	0	0	0	0	0	19	4.8	23.8	19	0	57.1	76.2	

	Washington Street Southbound				I-10 Eastbound On Ramp Westbound				Washington Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**	**2**
09:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2	2	4
% App. Total	0	0	0		0	0	0		0	100	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.250	.250	.500

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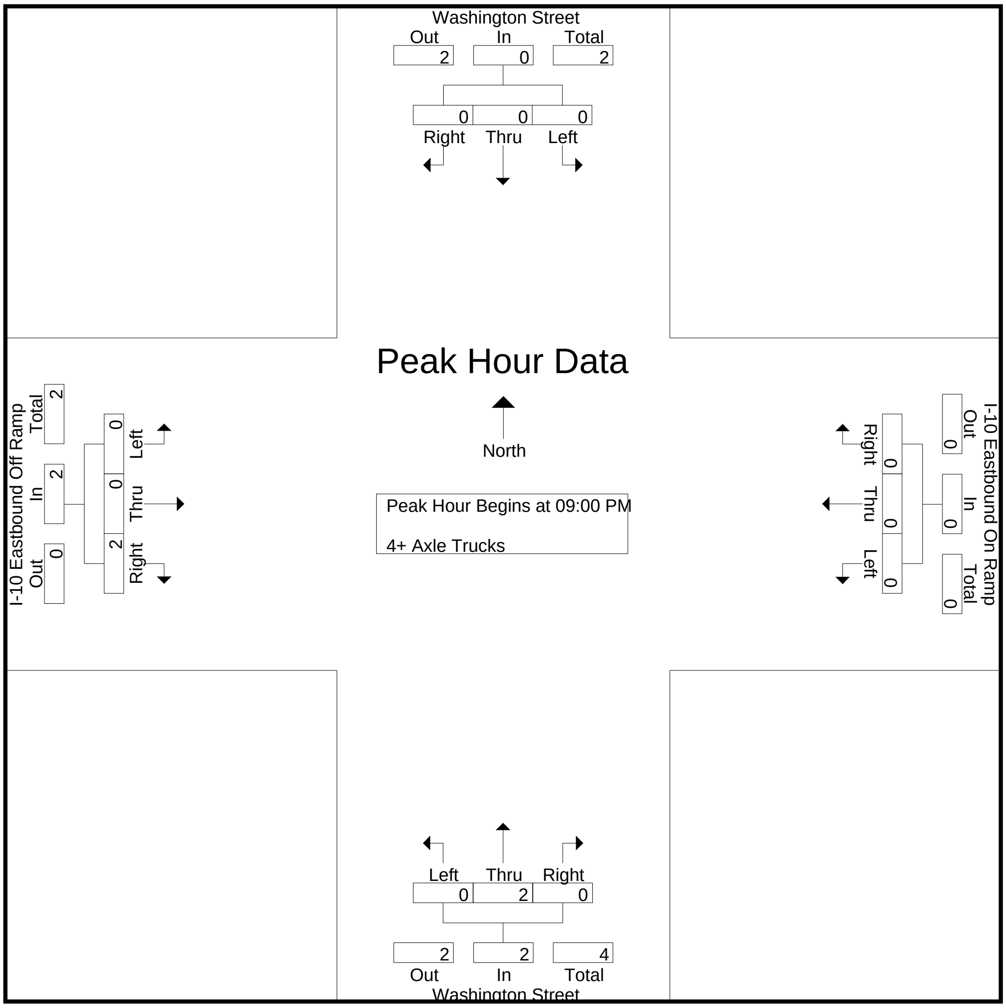
City of Palm Desert
N/S: Washington Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : 21_PLD_Washington_10E WLN
Site Code : 12820410
Start Date : 11/4/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.250	.250

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City of Palm Desert
N/S: Washington Street
E/W: Country Club Drive
Weather: Clear

File Name : 16_PLD_Washington_Country WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Washington Street Southbound				Country Club Drive Westbound				Washington Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	45	195	80	320	16	39	46	101	53	289	6	348	117	104	33	254	1023
04:15 PM	26	162	82	270	13	55	33	101	46	218	5	269	142	127	39	308	948
04:30 PM	41	202	87	330	15	42	40	97	55	231	11	297	143	128	37	308	1032
04:45 PM	48	223	86	357	9	64	30	103	57	233	7	297	106	125	31	262	1019
Total	160	782	335	1277	53	200	149	402	211	971	29	1211	508	484	140	1132	4022
05:00 PM	57	260	97	414	8	40	35	83	41	235	3	279	118	129	29	276	1052
05:15 PM	63	244	77	384	10	38	26	74	52	255	5	312	126	144	38	308	1078
05:30 PM	55	230	84	369	17	33	33	83	50	243	15	308	88	93	32	213	973
05:45 PM	39	230	81	350	12	46	31	89	52	227	5	284	91	85	23	199	922
Total	214	964	339	1517	47	157	125	329	195	960	28	1183	423	451	122	996	4025
06:00 PM	47	212	47	306	5	18	19	42	45	183	11	239	90	78	28	196	783
06:15 PM	31	174	57	262	7	38	26	71	56	169	10	235	98	67	18	183	751
06:30 PM	37	181	55	273	5	19	21	45	34	155	12	201	47	55	24	126	645
06:45 PM	36	110	49	195	15	33	17	65	36	110	6	152	73	36	13	122	534
Total	151	677	208	1036	32	108	83	223	171	617	39	827	308	236	83	627	2713
Grand Total	525	2423	882	3830	132	465	357	954	577	2548	96	3221	1239	1171	345	2755	10760
Apprch %	13.7	63.3	23		13.8	48.7	37.4		17.9	79.1	3		45	42.5	12.5		
Total %	4.9	22.5	8.2	35.6	1.2	4.3	3.3	8.9	5.4	23.7	0.9	29.9	11.5	10.9	3.2	25.6	

	Washington Street Southbound				Country Club Drive Westbound				Washington Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	41	202	87	330	**15**	42	**40**	97	55	231	**11**	297	**143**	128	37	**308**	1032
04:45 PM	48	223	86	357	9	**64**	30	**103**	**57**	233	7	297	106	125	31	262	1019
05:00 PM	57	**260**	**97**	**414**	8	40	35	83	41	235	3	279	118	129	29	276	1052
05:15 PM	**63**	244	77	384	10	38	26	74	52	**255**	5	**312**	126	**144**	**38**	308	**1078**
Total Volume	209	929	347	1485	42	184	131	357	205	954	26	1185	493	526	135	1154	4181
% App. Total	14.1	62.6	23.4		11.8	51.5	36.7		17.3	80.5	2.2		42.7	45.6	11.7		
PHF	.829	.893	.894	.897	.700	.719	.819	.867	.899	.935	.591	.950	.862	.913	.888	.937	.970

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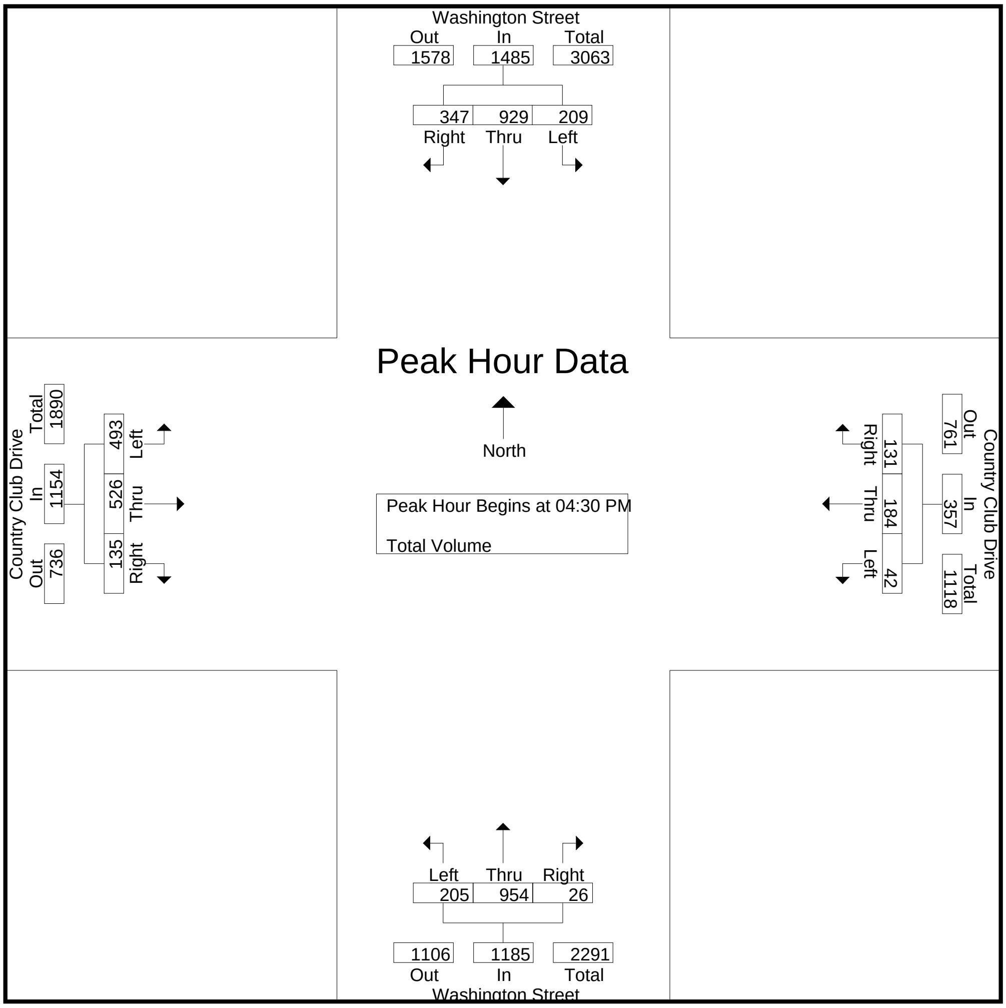
City of Palm Desert
N/S: Washington Street
E/W: Country Club Drive
Weather: Clear

File Name : 16_PLD_Washington_Country WPM
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:15 PM			
+0 mins.	48	223	86	357	**16**	39	**46**	101	53	**289**	6	**348**	142	127	**39**	**308**
+15 mins.	57	**260**	**97**	**414**	13	55	33	101	46	218	5	269	**143**	128	37	308
+30 mins.	**63**	244	77	384	15	42	40	97	55	231	**11**	297	106	125	31	262
+45 mins.	55	230	84	369	9	**64**	30	**103**	**57**	233	7	297	118	**129**	29	276
Total Volume	223	957	344	1524	53	200	149	402	211	971	29	1211	509	509	136	1154
% App. Total	14.6	62.8	22.6		13.2	49.8	37.1		17.4	80.2	2.4		44.1	44.1	11.8	
PHF	.885	.920	.887	.920	.828	.781	.810	.976	.925	.840	.659	.870	.890	.986	.872	.937

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City of Palm Desert
N/S: Washington Street
E/W: Country Club Drive
Weather: Clear

File Name : 16_PLD_Washington_Country WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Total Volume

	Washington Street Southbound				Country Club Drive Westbound				Washington Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
09:00 PM	13	75	18	106	6	16	11	33	14	68	1	83	43	32	9	84	306
09:15 PM	12	78	20	110	9	10	3	22	11	57	3	71	29	18	10	57	260
09:30 PM	9	53	10	72	1	7	9	17	12	44	1	57	22	24	7	53	199
09:45 PM	14	90	16	120	4	14	6	24	2	56	3	61	22	23	12	57	262
Total	48	296	64	408	20	47	29	96	39	225	8	272	116	97	38	251	1027
10:00 PM	7	59	16	82	5	9	2	16	17	39	4	60	26	25	10	61	219
10:15 PM	9	61	7	77	2	15	7	24	7	44	2	53	11	17	3	31	185
10:30 PM	8	57	8	73	2	6	5	13	9	41	3	53	15	12	5	32	171
10:45 PM	5	40	6	51	2	6	4	12	3	29	0	32	11	5	4	20	115
Total	29	217	37	283	11	36	18	65	36	153	9	198	63	59	22	144	690
11:00 PM	9	35	7	51	1	4	3	8	3	21	1	25	10	14	4	28	112
11:15 PM	4	33	2	39	3	7	3	13	4	32	2	38	7	9	3	19	109
11:30 PM	4	17	2	23	0	5	2	7	2	15	0	17	5	10	4	19	66
11:45 PM	4	27	5	36	1	1	1	3	3	16	2	21	1	6	3	10	70
Total	21	112	16	149	5	17	9	31	12	84	5	101	23	39	14	76	357
Grand Total	98	625	117	840	36	100	56	192	87	462	22	571	202	195	74	471	2074
Apprch %	11.7	74.4	13.9		18.8	52.1	29.2		15.2	80.9	3.9		42.9	41.4	15.7		
Total %	4.7	30.1	5.6	40.5	1.7	4.8	2.7	9.3	4.2	22.3	1.1	27.5	9.7	9.4	3.6	22.7	

	Washington Street Southbound				Country Club Drive Westbound				Washington Street Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 PM																	
09:00 PM	13	75	18	106	6	**16**	**11**	**33**	**14**	**68**	1	**83**	**43**	**32**	9	**84**	**306**
09:15 PM	12	78	**20**	110	**9**	10	3	22	11	57	**3**	71	29	18	10	57	260
09:30 PM	9	53	10	72	1	7	9	17	12	44	1	57	22	24	7	53	199
09:45 PM	**14**	**90**	16	**120**	4	14	6	24	2	56	3	61	22	23	**12**	57	262
Total Volume	48	296	64	408	20	47	29	96	39	225	8	272	116	97	38	251	1027
% App. Total	11.8	72.5	15.7		20.8	49	30.2		14.3	82.7	2.9		46.2	38.6	15.1		
PHF	.857	.822	.800	.850	.556	.734	.659	.727	.696	.827	.667	.819	.674	.758	.792	.747	.839

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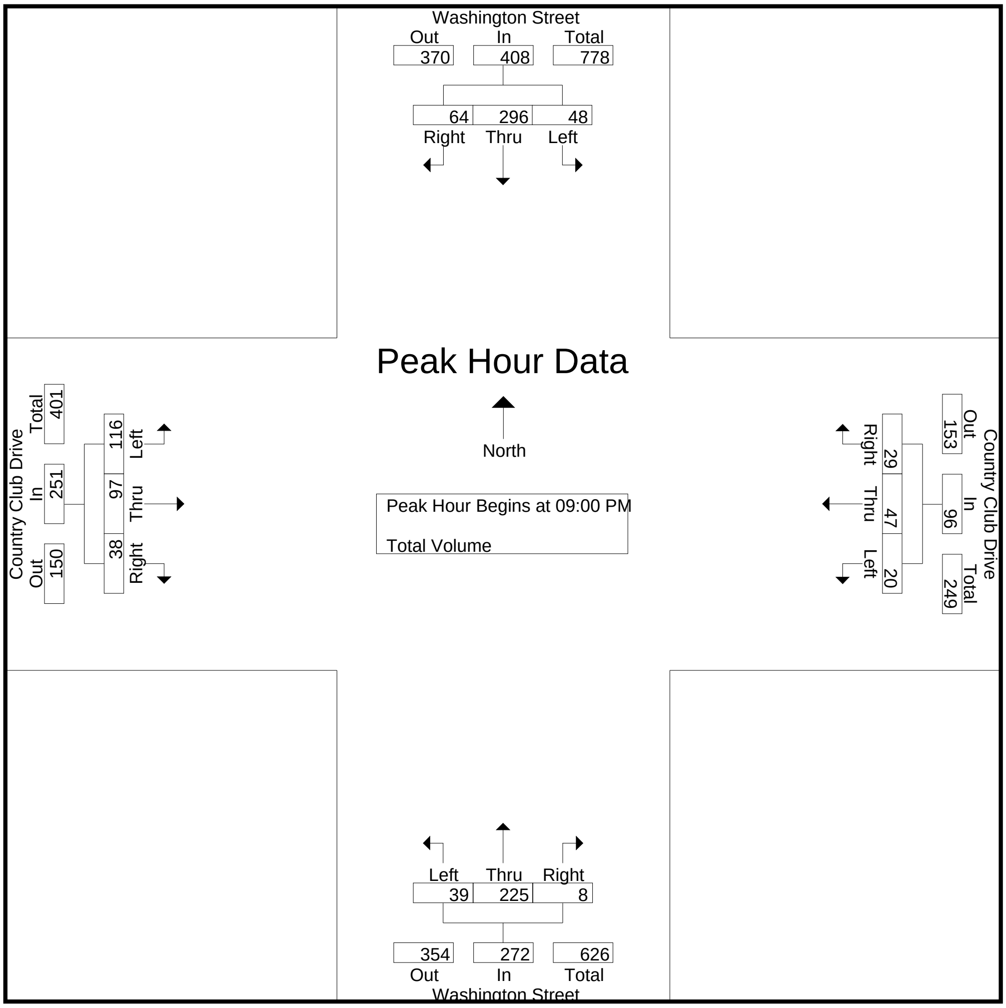
City of Palm Desert
N/S: Washington Street
E/W: Country Club Drive
Weather: Clear

File Name : 16_PLD_Washington_Country WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM				09:00 PM				09:00 PM				09:00 PM			
+0 mins.	13	75	18	106	6	**16**	**11**	**33**	**14**	**68**	1	**83**	**43**	**32**	9	**84**
+15 mins.	12	78	**20**	110	**9**	10	3	22	11	57	**3**	71	29	18	10	57
+30 mins.	9	53	10	72	1	7	9	17	12	44	1	57	22	24	7	53
+45 mins.	**14**	**90**	16	**120**	4	14	6	24	2	56	3	61	22	23	**12**	57
Total Volume	48	296	64	408	20	47	29	96	39	225	8	272	116	97	38	251
% App. Total	11.8	72.5	15.7		20.8	49	30.2		14.3	82.7	2.9		46.2	38.6	15.1	
PHF	.857	.822	.800	.850	.556	.734	.659	.727	.696	.827	.667	.819	.674	.758	.792	.747

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	40	146	186	75	11	86	176	103	279	551
04:15 PM	34	129	163	66	19	85	243	64	307	555
04:30 PM	34	122	156	104	8	112	238	60	298	566
04:45 PM	14	159	173	218	16	234	249	49	298	705
Total	122	556	678	463	54	517	906	276	1182	2377
05:00 PM	29	178	207	165	20	185	205	55	260	652
05:15 PM	36	119	155	95	15	110	161	91	252	517
05:30 PM	36	112	148	73	11	84	142	66	208	440
05:45 PM	27	116	143	72	12	84	136	68	204	431
Total	128	525	653	405	58	463	644	280	924	2040
06:00 PM	29	120	149	55	9	64	120	46	166	379
06:15 PM	17	81	98	54	10	64	127	67	194	356
06:30 PM	25	66	91	40	11	51	101	38	139	281
06:45 PM	16	72	88	49	14	63	83	35	118	269
Total	87	339	426	198	44	242	431	186	617	1285
Grand Total	337	1420	1757	1066	156	1222	1981	742	2723	5702
Apprch %	19.2	80.8		87.2	12.8		72.8	27.2		
Total %	5.9	24.9	30.8	18.7	2.7	21.4	34.7	13	47.8	
Passenger Vehicles	321	1379	1700	982	153	1135	1921	715	2636	5471
% Passenger Vehicles	95.3	97.1	96.8	92.1	98.1	92.9	97	96.4	96.8	95.9
Large 2 Axle Vehicles	13	37	50	32	2	34	54	19	73	157
% Large 2 Axle Vehicles	3.9	2.6	2.8	3	1.3	2.8	2.7	2.6	2.7	2.8
3 Axle Vehicles	0	0	0	5	0	5	3	1	4	9
% 3 Axle Vehicles	0	0	0	0.5	0	0.4	0.2	0.1	0.1	0.2
4+ Axle Trucks	3	4	7	47	1	48	3	7	10	65
% 4+ Axle Trucks	0.9	0.3	0.4	4.4	0.6	3.9	0.2	0.9	0.4	1.1

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	**34**	129	163	66	19	85	243	**64**	**307**	555
04:30 PM	34	122	156	104	8	112	238	60	298	566
04:45 PM	14	159	173	**218**	16	**234**	**249**	49	298	**705**
05:00 PM	29	**178**	**207**	165	**20**	185	205	55	260	652
Total Volume	111	588	699	553	63	616	935	228	1163	2478
% App. Total	15.9	84.1		89.8	10.2		80.4	19.6		
PHF	.816	.826	.844	.634	.788	.658	.939	.891	.947	.879

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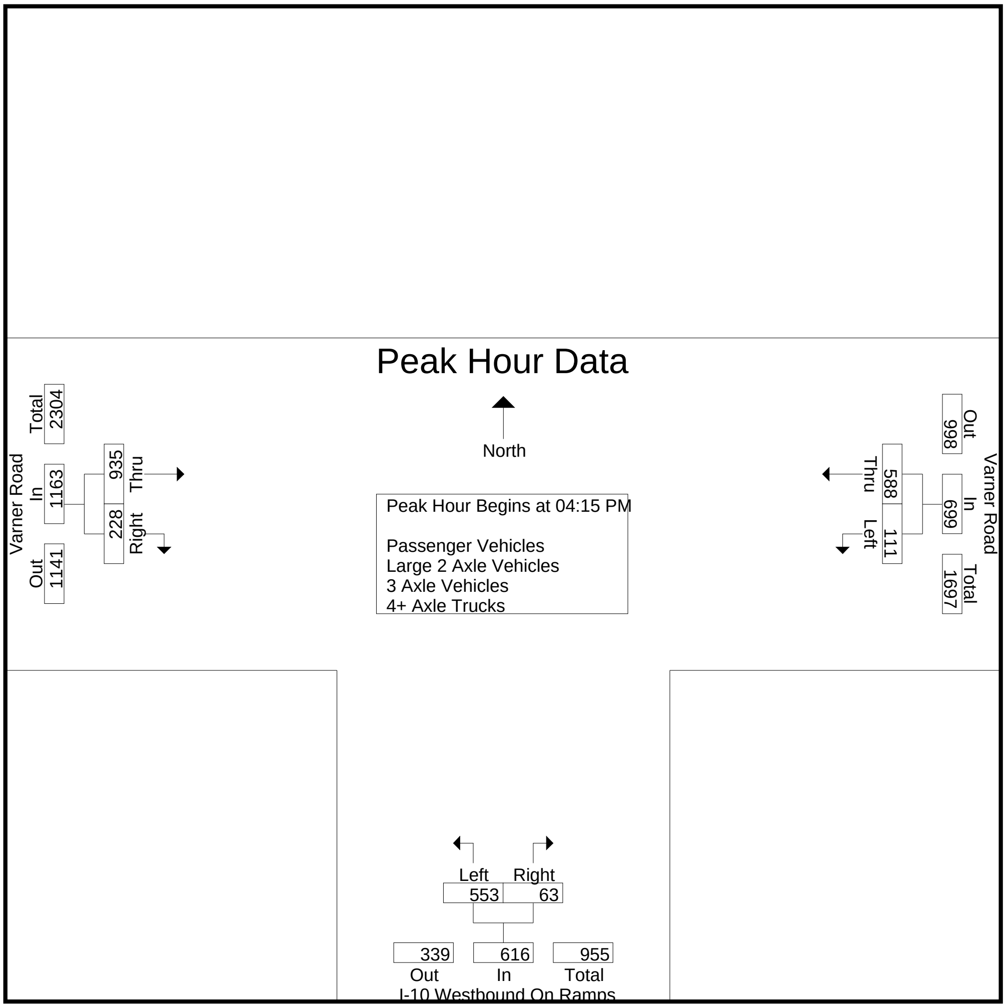
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:30 PM			04:00 PM		
+0 mins.	**34**	129	163	104	8	112	176	**103**	279
+15 mins.	34	122	156	**218**	16	**234**	243	64	**307**
+30 mins.	14	159	173	165	**20**	185	238	60	298
+45 mins.	29	**178**	**207**	95	15	110	**249**	49	298
Total Volume	111	588	699	582	59	641	906	276	1182
% App. Total	15.9	84.1		90.8	9.2		76.6	23.4	
PHF	.816	.826	.844	.667	.738	.685	.910	.670	.963

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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Groups Printed- Passenger Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	39	141	180	69	11	80	168	96	264	524
04:15 PM	31	125	156	63	19	82	233	59	292	530
04:30 PM	34	118	152	96	8	104	226	59	285	541
04:45 PM	14	150	164	183	14	197	243	47	290	651
Total	118	534	652	411	52	463	870	261	1131	2246
05:00 PM	26	169	195	147	20	167	194	55	249	611
05:15 PM	35	113	148	95	15	110	158	86	244	502
05:30 PM	34	111	145	69	11	80	140	65	205	430
05:45 PM	25	114	139	68	12	80	131	68	199	418
Total	120	507	627	379	58	437	623	274	897	1961
06:00 PM	26	120	146	54	8	62	120	44	164	372
06:15 PM	17	81	98	53	10	63	125	66	191	352
06:30 PM	24	65	89	40	11	51	100	36	136	276
06:45 PM	16	72	88	45	14	59	83	34	117	264
Total	83	338	421	192	43	235	428	180	608	1264
Grand Total	321	1379	1700	982	153	1135	1921	715	2636	5471
Apprch %	18.9	81.1		86.5	13.5		72.9	27.1		
Total %	5.9	25.2	31.1	17.9	2.8	20.7	35.1	13.1	48.2	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	31	125	156	63	19	82	233	**59**	**292**	530
04:30 PM	**34**	118	152	96	8	104	226	59	285	541
04:45 PM	14	150	164	**183**	14	**197**	**243**	47	290	**651**
05:00 PM	26	**169**	**195**	147	**20**	167	194	55	249	611
Total Volume	105	562	667	489	61	550	896	220	1116	2333
% App. Total	15.7	84.3		88.9	11.1		80.3	19.7		
PHF	.772	.831	.855	.668	.763	.698	.922	.932	.955	.896

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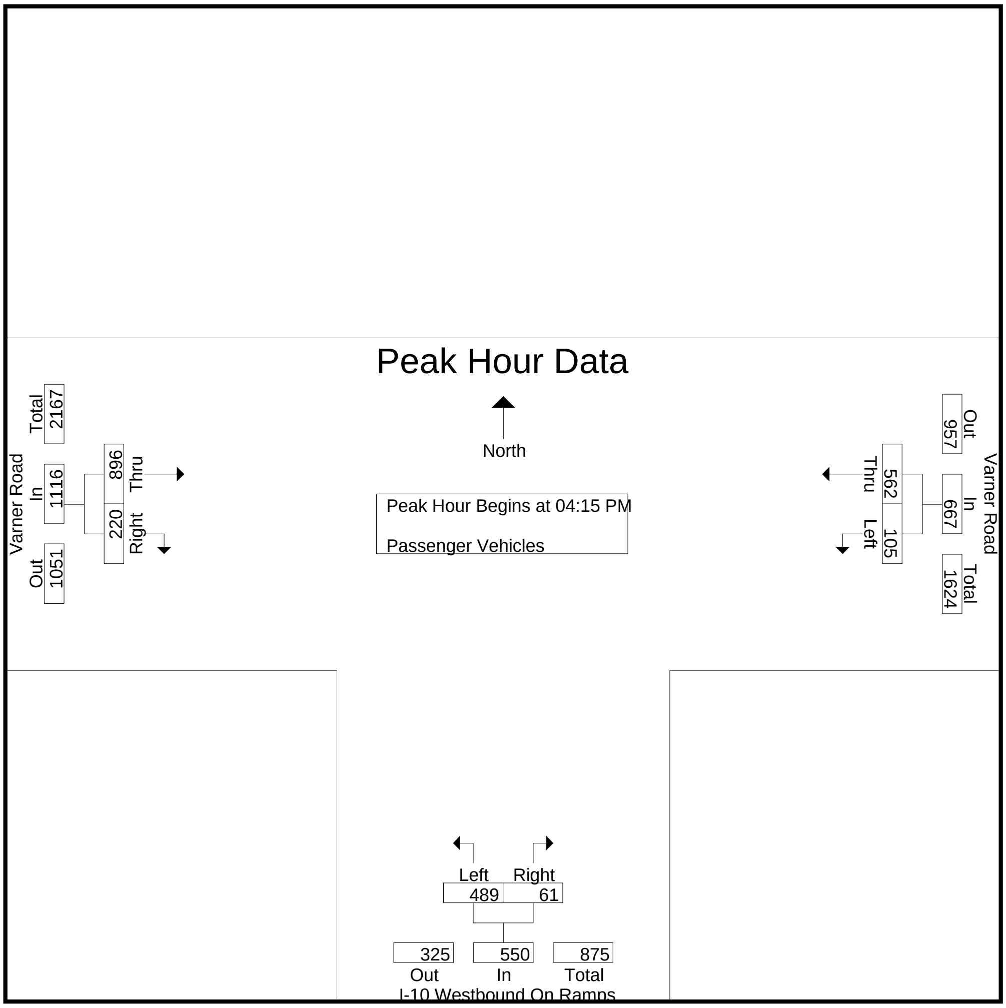
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:15 PM			04:15 PM		
+0 mins.	31	125	156	63	19	82	233	**59**	**292**
+15 mins.	**34**	118	152	96	8	104	226	59	285
+30 mins.	14	150	164	**183**	14	**197**	**243**	47	290
+45 mins.	26	**169**	**195**	147	**20**	167	194	55	249
Total Volume	105	562	667	489	61	550	896	220	1116
% App. Total	15.7	84.3		88.9	11.1		80.3	19.7	
PHF	.772	.831	.855	.668	.763	.698	.922	.932	.955

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	1	5	6	4	0	4	7	6	13	23
04:15 PM	3	4	7	3	0	3	10	4	14	24
04:30 PM	0	4	4	2	0	2	10	0	10	16
04:45 PM	0	7	7	6	1	7	5	1	6	20
Total	4	20	24	15	1	16	32	11	43	83
05:00 PM	2	8	10	6	0	6	10	0	10	26
05:15 PM	1	5	6	0	0	0	3	3	6	12
05:30 PM	2	1	3	4	0	4	2	0	2	9
05:45 PM	2	2	4	2	0	2	5	0	5	11
Total	7	16	23	12	0	12	20	3	23	58
06:00 PM	1	0	1	1	1	2	0	2	2	5
06:15 PM	0	0	0	1	0	1	1	0	1	2
06:30 PM	1	1	2	0	0	0	1	2	3	5
06:45 PM	0	0	0	3	0	3	0	1	1	4
Total	2	1	3	5	1	6	2	5	7	16
Grand Total	13	37	50	32	2	34	54	19	73	157
Apprch %	26	74		94.1	5.9		74	26		
Total %	8.3	23.6	31.8	20.4	1.3	21.7	34.4	12.1	46.5	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	**3**	4	7	3	0	3	**10**	**4**	**14**	24
04:30 PM	0	4	4	2	0	2	10	0	10	16
04:45 PM	0	7	7	**6**	**1**	**7**	5	1	6	20
05:00 PM	2	**8**	**10**	6	0	6	10	0	10	**26**
Total Volume	5	23	28	17	1	18	35	5	40	86
% App. Total	17.9	82.1		94.4	5.6		87.5	12.5		
PHF	.417	.719	.700	.708	.250	.643	.875	.313	.714	.827

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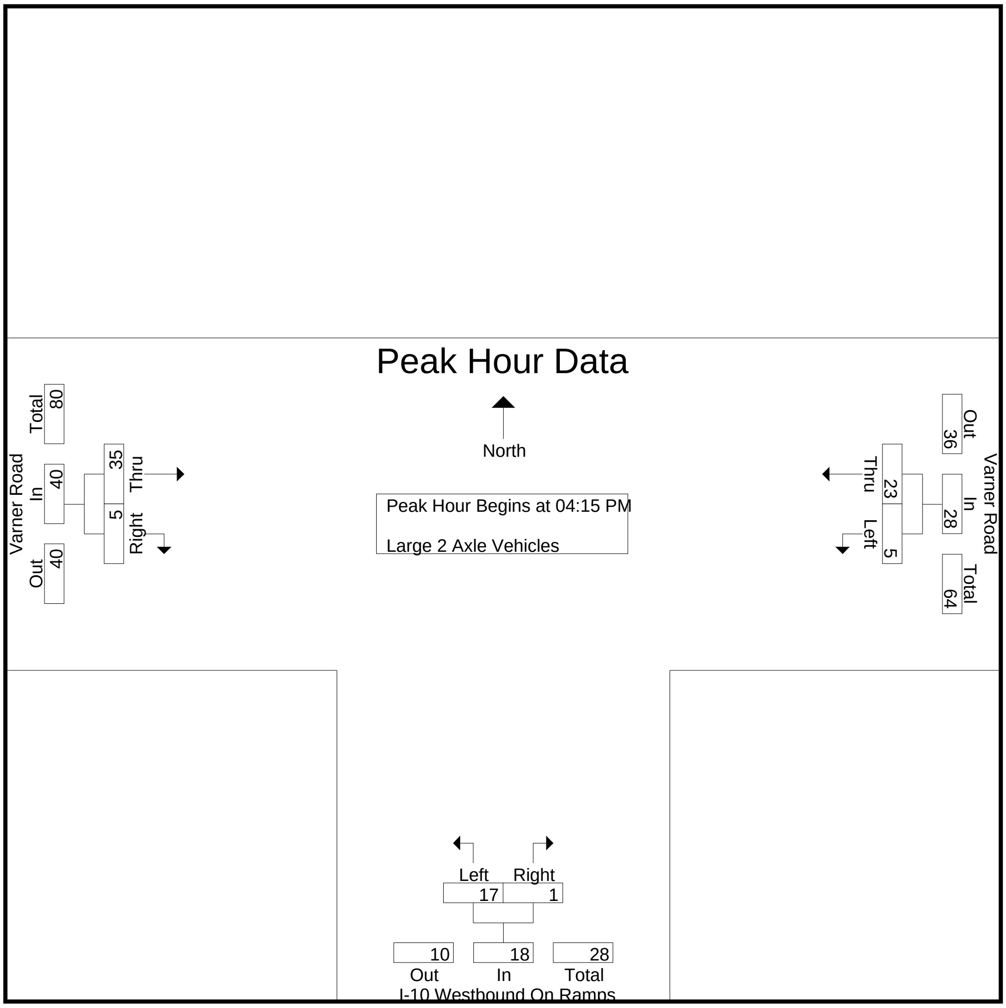
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:15 PM			04:15 PM		
+0 mins.	**3**	4	7	3	0	3	**10**	**4**	**14**
+15 mins.	0	4	4	2	0	2	10	0	10
+30 mins.	0	7	7	**6**	**1**	**7**	5	1	6
+45 mins.	2	**8**	**10**	6	0	6	10	0	10
Total Volume	5	23	28	17	1	18	35	5	40
% App. Total	17.9	82.1		94.4	5.6		87.5	12.5	
PHF	.417	.719	.700	.708	.250	.643	.875	.313	.714

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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Groups Printed- 3 Axle Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	1	0	1	1	0	1	2
04:45 PM	0	0	0	3	0	3	0	0	0	3
Total	0	0	0	4	0	4	1	0	1	5
05:00 PM	0	0	0	1	0	1	1	0	1	2
05:15 PM	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	1	1	2	3
06:00 PM	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	1	0	1	1
06:30 PM	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	5	0	5	3	1	4	9
Apprch %	0	0		100	0		75	25		
Total %	0	0	0	55.6	0	55.6	33.3	11.1	44.4	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	1	0	1	**1**	0	**1**	2
04:45 PM	0	0	0	**3**	0	**3**	0	0	0	**3**
05:00 PM	0	0	0	1	0	1	1	0	1	2
Total Volume	0	0	0	5	0	5	2	0	2	7
% App. Total	0	0		100	0		100	0		
PHF	.000	.000	.000	.417	.000	.417	.500	.000	.500	.583

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
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File Name : 15_10W_Varner WPM
Site Code : 12820410
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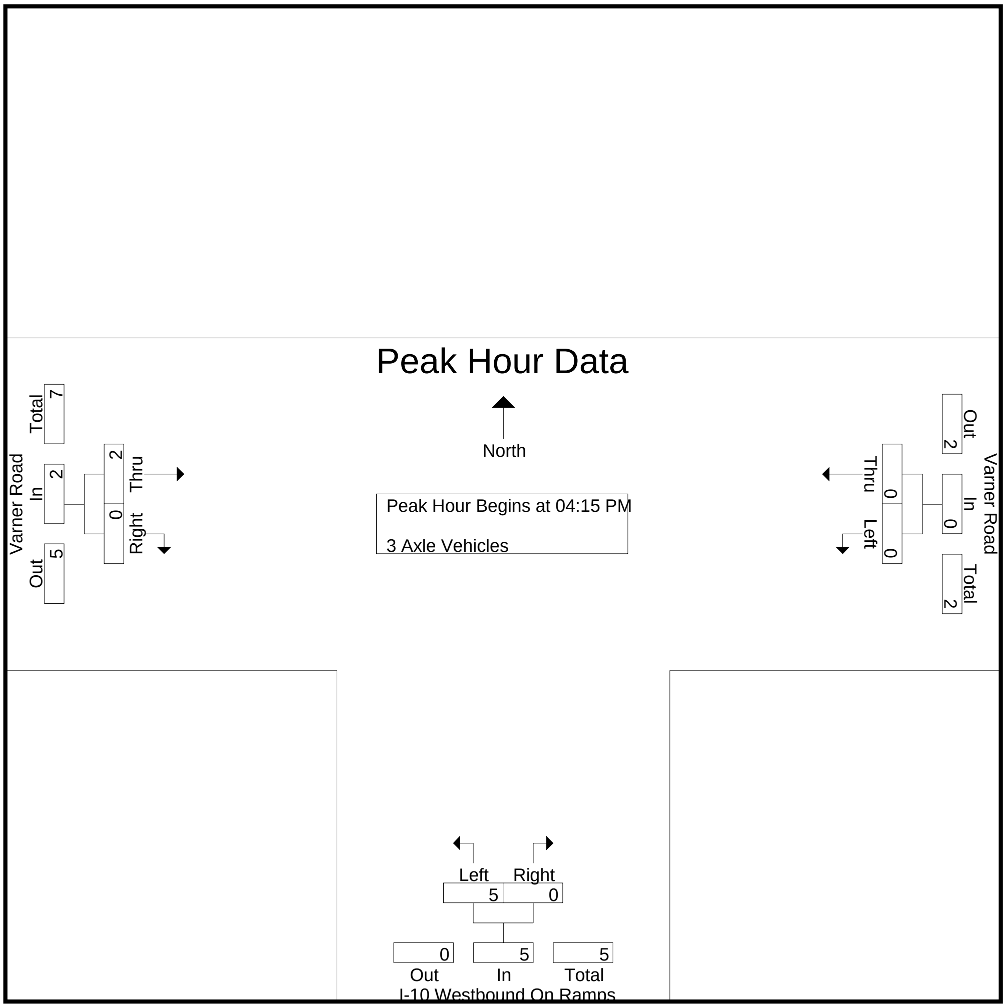

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:15 PM			04:15 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	**1**	0	**1**
+30 mins.	0	0	0	**3**	0	**3**	0	0	0
+45 mins.	0	0	0	1	0	1	1	0	1
Total Volume	0	0	0	5	0	5	2	0	2
% App. Total	0	0		100	0		100	0	
PHF	.000	.000	.000	.417	.000	.417	.500	.000	.500

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WPM
Site Code : 12820410
Start Date : 10/28/2020
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Groups Printed- 4+ Axle Trucks

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	2	0	2	1	1	2	4
04:15 PM	0	0	0	0	0	0	0	1	1	1
04:30 PM	0	0	0	5	0	5	1	1	2	7
04:45 PM	0	2	2	26	1	27	1	1	2	31
Total	0	2	2	33	1	34	3	4	7	43
05:00 PM	1	1	2	11	0	11	0	0	0	13
05:15 PM	0	1	1	0	0	0	0	1	1	2
05:30 PM	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	0	2	0	2	0	0	0	2
Total	1	2	3	13	0	13	0	2	2	18
06:00 PM	2	0	2	0	0	0	0	0	0	2
06:15 PM	0	0	0	0	0	0	0	1	1	1
06:30 PM	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	1	0	1	0	0	0	1
Total	2	0	2	1	0	1	0	1	1	4
Grand Total	3	4	7	47	1	48	3	7	10	65
Apprch %	42.9	57.1		97.9	2.1		30	70		
Total %	4.6	6.2	10.8	72.3	1.5	73.8	4.6	10.8	15.4	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	0	0	0	0	0	0	**1**	1	1
04:30 PM	0	0	0	5	0	5	**1**	1	**2**	7
04:45 PM	0	**2**	**2**	**26**	**1**	**27**	1	1	2	**31**
05:00 PM	**1**	1	2	11	0	11	0	0	0	13
Total Volume	1	3	4	42	1	43	2	3	5	52
% App. Total	25	75		97.7	2.3		40	60		
PHF	.250	.375	.500	.404	.250	.398	.500	.750	.625	.419

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E/W: Varner Road
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File Name : 15_10W_Varner WPM
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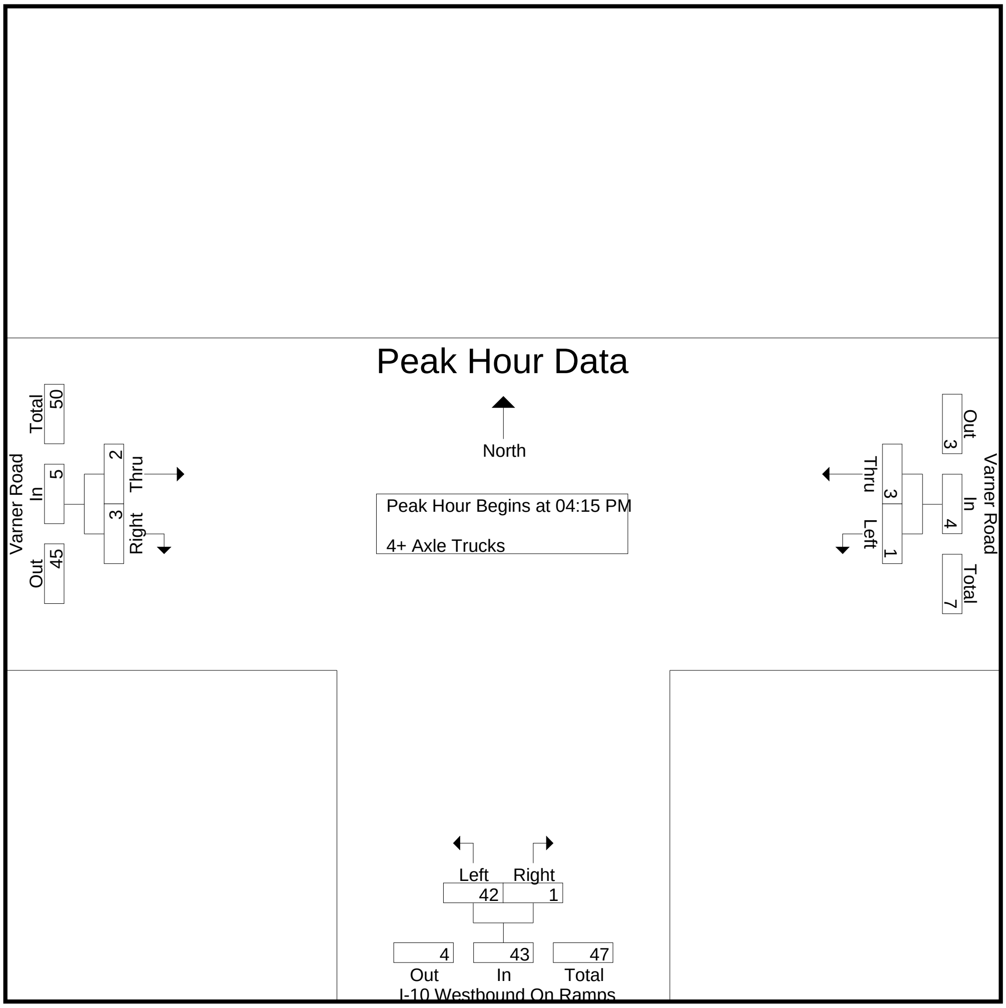

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:15 PM			04:15 PM		
+0 mins.	0	0	0	0	0	0	0	**1**	1
+15 mins.	0	0	0	5	0	5	**1**	1	**2**
+30 mins.	0	**2**	**2**	**26**	**1**	**27**	1	1	2
+45 mins.	**1**	1	2	11	0	11	0	0	0
Total Volume	1	3	4	42	1	43	2	3	5
% App. Total	25	75		97.7	2.3		40	60	
PHF	.250	.375	.500	.404	.250	.398	.500	.750	.625

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N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

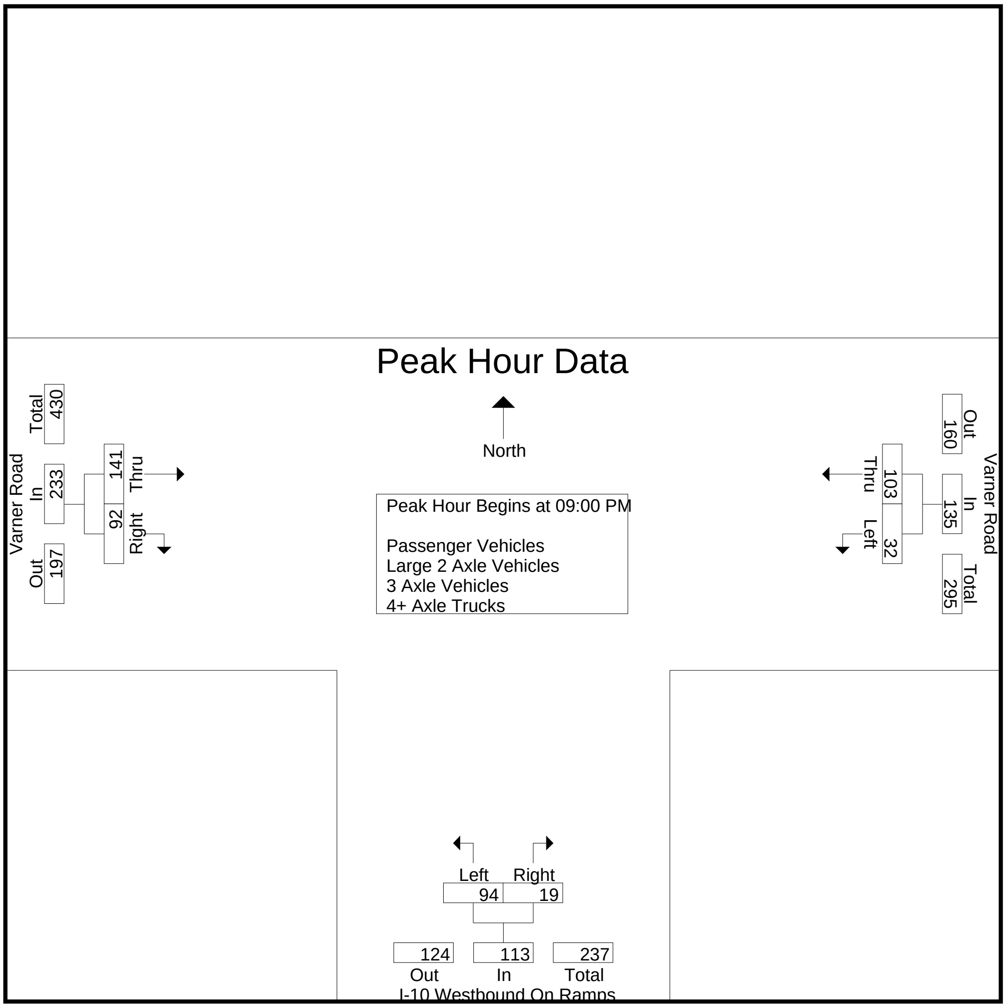
	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	7	29	36	29	1	30	43	39	82	148
09:15 PM	6	29	35	29	10	39	39	14	53	127
09:30 PM	11	20	31	16	5	21	30	21	51	103
09:45 PM	8	25	33	20	3	23	29	18	47	103
Total	32	103	135	94	19	113	141	92	233	481
10:00 PM	6	16	22	20	4	24	22	17	39	85
10:15 PM	3	19	22	17	2	19	22	10	32	73
10:30 PM	2	15	17	12	6	18	24	15	39	74
10:45 PM	5	16	21	12	1	13	14	9	23	57
Total	16	66	82	61	13	74	82	51	133	289
11:00 PM	4	13	17	13	1	14	12	10	22	53
11:15 PM	3	3	6	13	3	16	11	9	20	42
11:30 PM	1	8	9	3	1	4	7	7	14	27
11:45 PM	4	8	12	12	4	16	10	9	19	47
Total	12	32	44	41	9	50	40	35	75	169
Grand Total	60	201	261	196	41	237	263	178	441	939
Apprch %	23	77		82.7	17.3		59.6	40.4		
Total %	6.4	21.4	27.8	20.9	4.4	25.2	28	19	47	
Passenger Vehicles	57	197	254	189	39	228	259	168	427	909
% Passenger Vehicles	95	98	97.3	96.4	95.1	96.2	98.5	94.4	96.8	96.8
Large 2 Axle Vehicles	1	3	4	2	0	2	1	4	5	11
% Large 2 Axle Vehicles	1.7	1.5	1.5	1	0	0.8	0.4	2.2	1.1	1.2
3 Axle Vehicles	0	0	0	1	0	1	0	0	0	1
% 3 Axle Vehicles	0	0	0	0.5	0	0.4	0	0	0	0.1
4+ Axle Trucks	2	1	3	4	2	6	3	6	9	18
% 4+ Axle Trucks	3.3	0.5	1.1	2	4.9	2.5	1.1	3.4	2	1.9

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	7	**29**	**36**	**29**	1	30	**43**	**39**	**82**	**148**
09:15 PM	6	29	35	29	**10**	**39**	39	14	53	127
09:30 PM	**11**	20	31	16	5	21	30	21	51	103
09:45 PM	8	25	33	20	3	23	29	18	47	103
Total Volume	32	103	135	94	19	113	141	92	233	481
% App. Total	23.7	76.3		83.2	16.8		60.5	39.5		
PHF	.727	.888	.938	.810	.475	.724	.820	.590	.710	.813

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 11:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	7	**29**	**36**	**29**	1	30	**43**	**39**	**82**
+15 mins.	6	29	35	29	**10**	**39**	39	14	53
+30 mins.	**11**	20	31	16	5	21	30	21	51
+45 mins.	8	25	33	20	3	23	29	18	47
Total Volume	32	103	135	94	19	113	141	92	233
% App. Total	23.7	76.3		83.2	16.8		60.5	39.5	
PHF	.727	.888	.938	.810	.475	.724	.820	.590	.710

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Passenger Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	7	28	35	28	1	29	42	35	77	141
09:15 PM	6	28	34	29	10	39	39	13	52	125
09:30 PM	10	20	30	13	5	18	30	20	50	98
09:45 PM	8	25	33	20	2	22	29	18	47	102
Total	31	101	132	90	18	108	140	86	226	466
10:00 PM	6	15	21	20	4	24	21	15	36	81
10:15 PM	2	19	21	16	2	18	22	10	32	71
10:30 PM	2	15	17	12	6	18	23	15	38	73
10:45 PM	5	16	21	12	0	12	14	9	23	56
Total	15	65	80	60	12	72	80	49	129	281
11:00 PM	3	12	15	13	1	14	12	9	21	50
11:15 PM	3	3	6	12	3	15	11	8	19	40
11:30 PM	1	8	9	3	1	4	6	7	13	26
11:45 PM	4	8	12	11	4	15	10	9	19	46
Total	11	31	42	39	9	48	39	33	72	162
Grand Total	57	197	254	189	39	228	259	168	427	909
Apprch %	22.4	77.6		82.9	17.1		60.7	39.3		
Total %	6.3	21.7	27.9	20.8	4.3	25.1	28.5	18.5	47	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	7	**28**	**35**	28	1	29	**42**	**35**	**77**	**141**
09:15 PM	6	28	34	**29**	**10**	**39**	39	13	52	125
09:30 PM	**10**	20	30	13	5	18	30	20	50	98
09:45 PM	8	25	33	20	2	22	29	18	47	102
Total Volume	31	101	132	90	18	108	140	86	226	466
% App. Total	23.5	76.5		83.3	16.7		61.9	38.1		
PHF	.775	.902	.943	.776	.450	.692	.833	.614	.734	.826

Counts Unlimited
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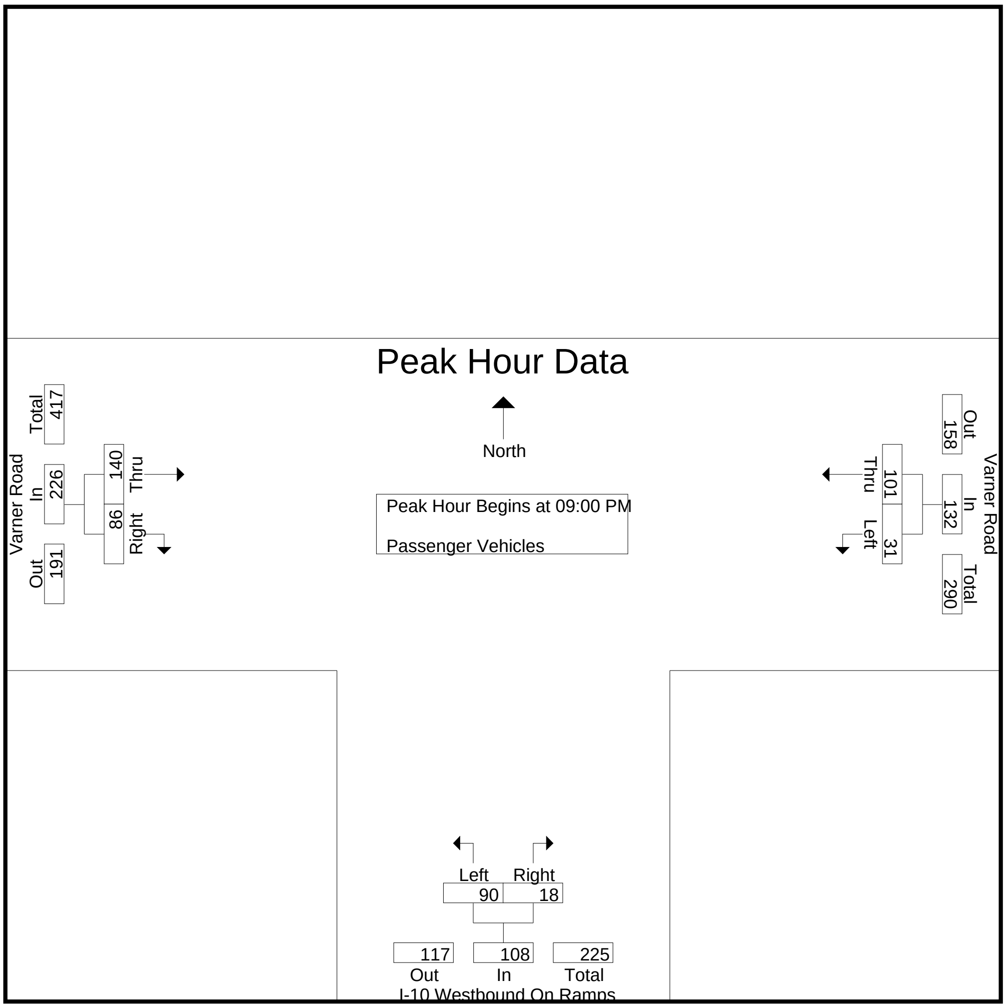
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	7	**28**	**35**	28	1	29	**42**	**35**	**77**
+15 mins.	6	28	34	**29**	**10**	**39**	39	13	52
+30 mins.	**10**	20	30	13	5	18	30	20	50
+45 mins.	8	25	33	20	2	22	29	18	47
Total Volume	31	101	132	90	18	108	140	86	226
% App. Total	23.5	76.5		83.3	16.7		61.9	38.1	
PHF	.775	.902	.943	.776	.450	.692	.833	.614	.734

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	0	1	1	0	0	0	0	1	1	2
09:15 PM	0	1	1	0	0	0	0	0	0	1
09:30 PM	1	0	1	1	0	1	0	1	1	3
09:45 PM	0	0	0	0	0	0	0	0	0	0
Total	1	2	3	1	0	1	0	2	2	6
10:00 PM	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	1	0	1	1
10:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	1
11:00 PM	0	1	1	0	0	0	0	1	1	2
11:15 PM	0	0	0	1	0	1	0	1	1	2
11:30 PM	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	1	0	1	0	2	2	4
Grand Total	1	3	4	2	0	2	1	4	5	11
Apprch %	25	75		100	0		20	80		
Total %	9.1	27.3	36.4	18.2	0	18.2	9.1	36.4	45.5	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	0	**1**	**1**	0	0	0	0	**1**	**1**	2
09:15 PM	0	1	1	0	0	0	0	0	0	1
09:30 PM	**1**	0	1	**1**	0	**1**	0	1	1	**3**
09:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	3	1	0	1	0	2	2	6
% App. Total	33.3	66.7		100	0		0	100		
PHF	.250	.500	.750	.250	.000	.250	.000	.500	.500	.500

Counts Unlimited
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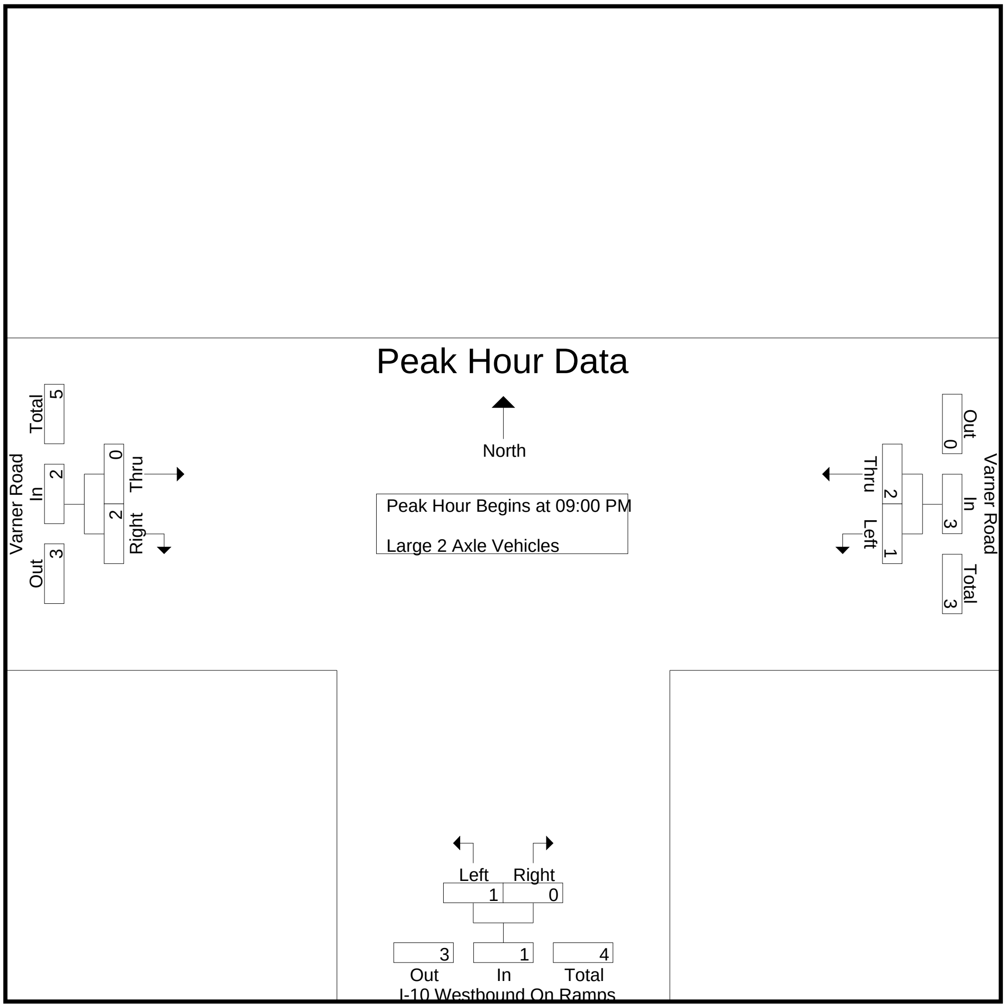
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	0	**1**	**1**	0	0	0	0	**1**	**1**
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	**1**	0	1	**1**	0	**1**	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	1	2	3	1	0	1	0	2	2
% App. Total	33.3	66.7		100	0		0	100	
PHF	.250	.500	.750	.250	.000	.250	.000	.500	.500

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	1	0	1	0	0	0	1
09:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	0	0	0	1
10:00 PM	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	1	0	0	0	1
Apprch %	0	0		100	0		0	0		
Total %	0	0	0	100	0	100	0	0	0	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	**1**	0	**1**	0	0	0	**1**
09:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

Counts Unlimited
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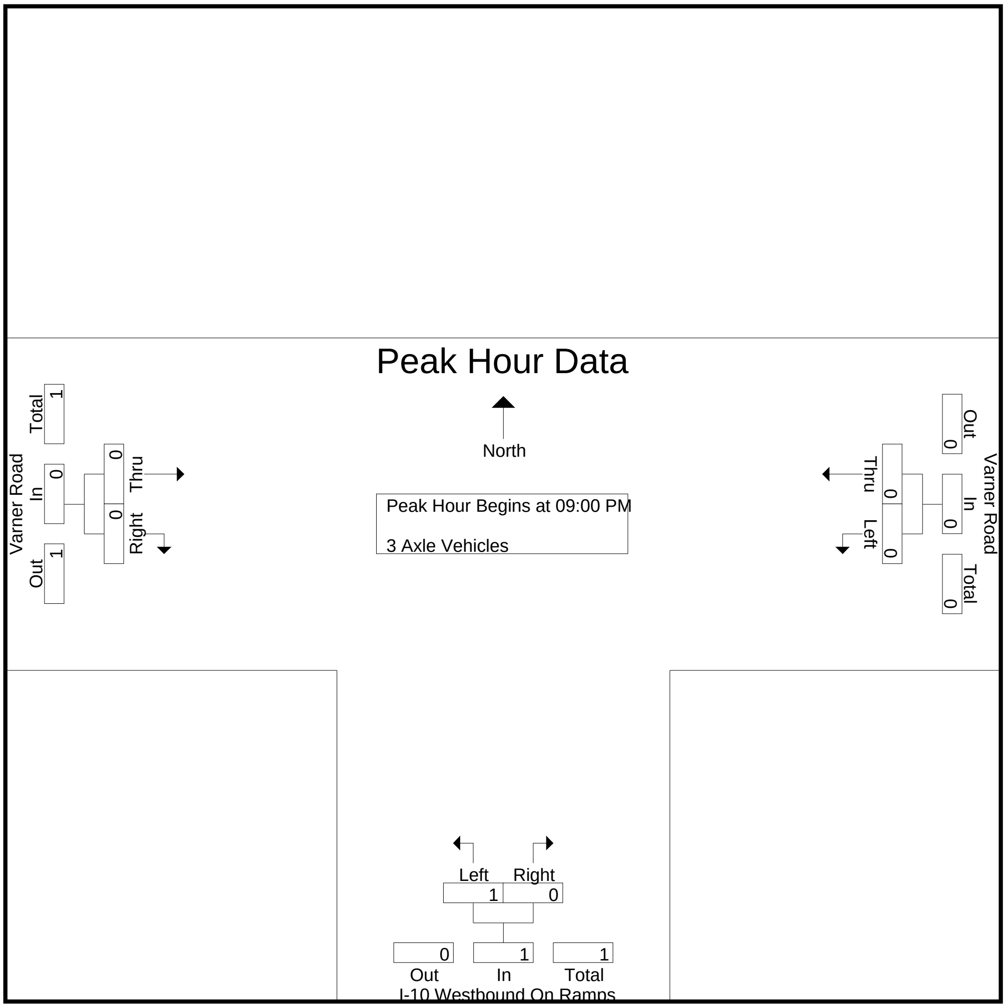
County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	**1**	0	**1**	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0		100	0		0	0	
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

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County of Riverside
N/S: I-10 Westbound On Ramps
E/W: Varner Road
Weather: Clear

File Name : 15_10W_Varner WLN
Site Code : 12820410
Start Date : 10/28/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
09:00 PM	0	0	0	1	0	1	1	3	4	5
09:15 PM	0	0	0	0	0	0	0	1	1	1
09:30 PM	0	0	0	1	0	1	0	0	0	1
09:45 PM	0	0	0	0	1	1	0	0	0	1
Total	0	0	0	2	1	3	1	4	5	8
10:00 PM	0	1	1	0	0	0	1	2	3	4
10:15 PM	1	0	1	1	0	1	0	0	0	2
10:30 PM	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	1	1	0	0	0	1
Total	1	1	2	1	1	2	1	2	3	7
11:00 PM	1	0	1	0	0	0	0	0	0	1
11:15 PM	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	1	0	1	1
11:45 PM	0	0	0	1	0	1	0	0	0	1
Total	1	0	1	1	0	1	1	0	1	3
Grand Total	2	1	3	4	2	6	3	6	9	18
Apprch %	66.7	33.3		66.7	33.3		33.3	66.7		
Total %	11.1	5.6	16.7	22.2	11.1	33.3	16.7	33.3	50	

	Varner Road Westbound			I-10 Westbound On Ramps Northbound			Varner Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 PM										
09:00 PM	0	0	0	**1**	0	**1**	**1**	**3**	**4**	**5**
09:15 PM	0	0	0	0	0	0	0	1	1	1
09:30 PM	0	0	0	1	0	1	0	0	0	1
09:45 PM	0	0	0	0	**1**	1	0	0	0	1
Total Volume	0	0	0	2	1	3	1	4	5	8
% App. Total	0	0		66.7	33.3		20	80		
PHF	.000	.000	.000	.500	.250	.750	.250	.333	.313	.400

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County of Riverside
N/S: I-10 Westbound On Ramps
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File Name : 15_10W_Varner WLN
Site Code : 12820410
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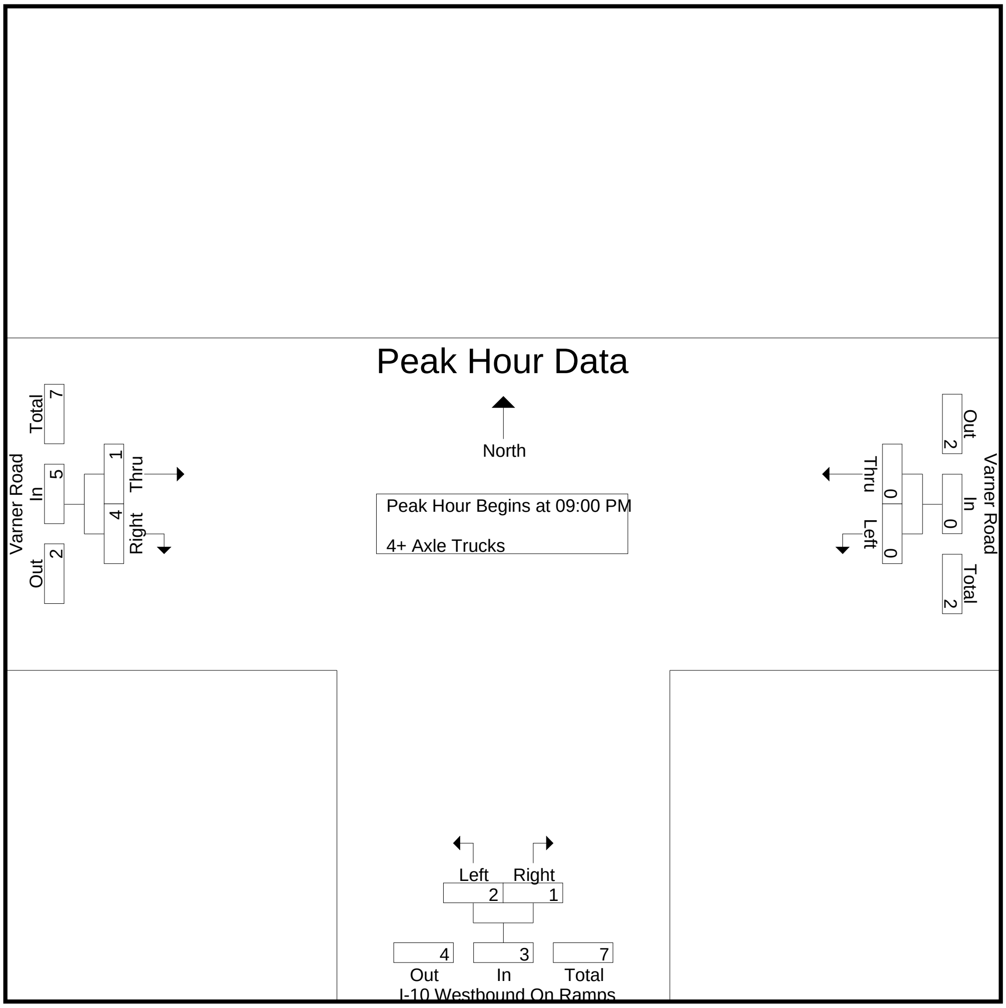
Page No : 2



Peak Hour Analysis From 09:00 PM to 09:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:00 PM			09:00 PM			09:00 PM		
+0 mins.	0	0	0	**1**	0	**1**	**1**	**3**	**4**
+15 mins.	0	0	0	0	0	0	0	1	1
+30 mins.	0	0	0	1	0	1	0	0	0
+45 mins.	0	0	0	0	**1**	1	0	0	0
Total Volume	0	0	0	2	1	3	1	4	5
% App. Total	0	0		66.7	33.3		20	80	
PHF	.000	.000	.000	.500	.250	.750	.250	.333	.313

Appendix B

Existing Conditions Analysis Worksheets

Intersections

Intersection Level Of Service Report

Intersection 1: Monterey Avenue and Varner Road

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.438

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	206.00	100.00	150.00	195.00	100.00	120.00	265.00	100.00	275.00	358.00	100.00	50.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Base Volume Input [veh/h]	216	428	74	22	379	11	28	72	207	465	192	153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	216	428	74	22	379	11	28	72	207	465	192	153
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	110	19	6	98	3	7	19	53	120	49	39
Total Analysis Volume [veh/h]	223	441	76	23	391	11	29	74	213	479	198	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	48	0	9	37	0	34	21	0	42	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	26	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	71	71	3	64	64	3	11	11	11	20	27	27
g / C, Green / Cycle	0.08	0.59	0.59	0.02	0.53	0.53	0.03	0.09	0.09	0.09	0.16	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.05	0.01	0.11	0.01	0.02	0.04	0.07	0.07	0.14	0.06	0.10
s, saturation flow rate [veh/h]	3459	3560	1589	1781	3560	1589	1781	1870	1589	1589	3459	3560	1589
c, Capacity [veh/h]	287	2108	941	41	1895	846	48	166	141	141	564	800	357
d1, Uniform Delay [s]	53.95	11.41	10.50	58.02	14.76	13.23	57.81	51.93	53.46	53.46	48.82	38.20	40.06
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.50	0.23	0.17	11.13	0.25	0.03	11.92	1.89	8.02	8.02	3.70	0.16	0.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.21	0.08	0.56	0.21	0.01	0.61	0.45	0.76	0.76	0.85	0.25	0.44
d, Delay for Lane Group [s/veh]	58.45	11.63	10.66	69.15	15.01	13.26	69.72	53.82	61.48	61.48	52.52	38.36	40.92
Lane Group LOS	E	B	B	E	B	B	E	D	E	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.48	2.76	0.90	0.82	2.85	0.15	1.03	2.21	3.45	3.45	7.25	2.42	4.11
50th-Percentile Queue Length [ft/ln]	87.01	68.92	22.43	20.50	71.30	3.68	25.74	55.17	86.36	86.36	181.19	60.62	102.85
95th-Percentile Queue Length [veh/ln]	6.27	4.96	1.61	1.48	5.13	0.26	1.85	3.97	6.22	6.22	11.66	4.36	7.41
95th-Percentile Queue Length [ft/ln]	156.63	124.05	40.37	36.90	128.35	6.62	46.34	99.30	155.4	155.4	291.57	109.12	185.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.45	11.63	10.66	69.15	15.01	13.26	69.72	53.82	61.48	52.52	38.36	40.92
Movement LOS	E	B	B	E	B	B	E	D	E	D	D	D
d_A, Approach Delay [s/veh]	25.64			17.89			60.44			46.97		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	36.66											
Intersection LOS	D											
Intersection V/C	0.438											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	25.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	37.60	49.50	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.627	2.588	0.000
Crosswalk LOS	F	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	550	283	417
d_b, Bicycle Delay [s]	24.07	31.54	44.20	37.60
I_b,int, Bicycle LOS Score for Intersection	2.170	1.910	1.820	2.248
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Monterey Avenue and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.786

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Base Volume Input [veh/h]	0	1484	649	164	818	0	47	2	572	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1484	649	164	818	0	47	2	572	0	0	0
Peak Hour Factor	1.0000	0.9900	0.9900	0.9900	0.9900	1.0000	0.9900	0.9900	0.9900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	375	164	41	207	0	12	1	144	0	0	0
Total Analysis Volume [veh/h]	0	1499	656	166	826	0	47	2	578	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	41	56	0	0	20	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	66	66	66	66	66	66	66	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	35	35	5	44	14	14	14	
g / C, Green / Cycle	0.52	0.52	0.08	0.66	0.21	0.21	0.21	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.41	0.05	0.23	0.03	0.18	0.18	
s, saturation flow rate [veh/h]	5094	1589	3459	3560	1781	1591	1589	
c, Capacity [veh/h]	2660	830	281	2363	383	343	342	
d1, Uniform Delay [s]	10.70	12.86	29.33	4.87	20.92	24.90	24.91	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.87	7.57	1.98	0.41	0.14	5.80	5.80	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.56	0.79	0.59	0.35	0.12	0.85	0.85	
d, Delay for Lane Group [s/veh]	11.57	20.43	31.31	5.28	21.06	30.70	30.71	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	4.37	8.30	1.30	1.90	0.57	4.64	4.64	
50th-Percentile Queue Length [ft/ln]	109.14	207.39	32.43	47.41	14.29	116.07	115.98	
95th-Percentile Queue Length [veh/ln]	7.79	13.02	2.34	3.41	1.03	8.18	8.17	
95th-Percentile Queue Length [ft/ln]	194.81	325.47	58.38	85.34	25.73	204.41	204.28	

Movement, Approach, & Intersection Results

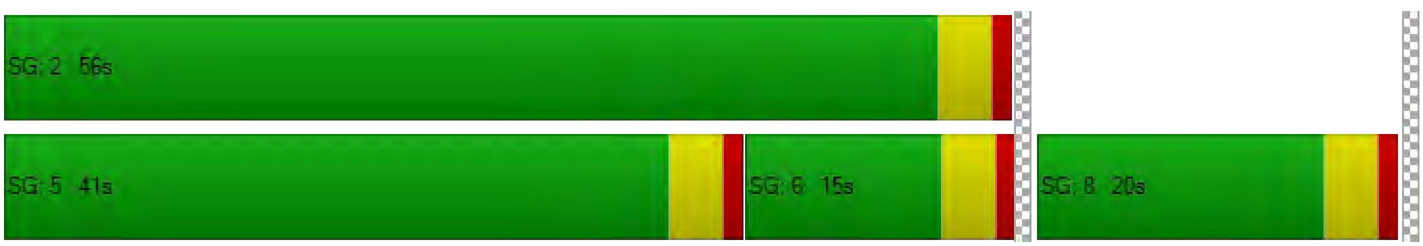
d_M, Delay for Movement [s/veh]	0.00	11.57	20.43	31.31	5.28	0.00	21.06	30.70	30.70	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	14.27			9.63			29.98			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	15.66											
Intersection LOS	B											
Intersection V/C	0.786											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	52.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	1.48	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.017	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1576	485	0
d_b, Bicycle Delay [s]	22.92	1.48	18.94	33.00
I_b,int, Bicycle LOS Score for Intersection	2.745	2.378	2.594	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	23	23	19	122	212	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	23	19	122	212	27
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	6	37	64	8
Total Analysis Volume [veh/h]	28	28	23	147	255	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.96	9.87	7.88	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.11	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.05	2.84	1.38	1.38	0.00	0.00
d_A, Approach Delay [s/veh]	10.92		1.07		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	46.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.243

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	125	45	105	7	67	3	2	89	53	104	114	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	45	105	7	67	3	2	89	53	104	114	2
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	12	28	2	18	1	1	24	14	28	30	1
Total Analysis Volume [veh/h]	133	48	112	7	71	3	2	95	56	111	121	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	30	61	0	9	40	0	10	36	0	24	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	93	93	1	83	83	0	13	6	19	19
g / C, Green / Cycle	0.09	0.72	0.72	0.01	0.64	0.64	0.00	0.10	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.03	0.07	0.00	0.02	0.02	0.00	0.09	0.03	0.06	0.00
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1844	1781	1755	3459	1870	1589
c, Capacity [veh/h]	160	1342	1141	16	1191	1174	6	179	166	275	234
d1, Uniform Delay [s]	58.18	5.31	5.57	64.09	8.74	8.75	64.67	57.33	60.88	50.57	47.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.46	0.05	0.17	17.45	0.05	0.05	34.91	10.10	4.62	1.11	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.04	0.10	0.44	0.03	0.03	0.36	0.84	0.67	0.44	0.01
d, Delay for Lane Group [s/veh]	68.64	5.36	5.74	81.53	8.79	8.80	99.58	67.43	65.49	51.68	47.37
Lane Group LOS	E	A	A	F	A	A	F	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.77	0.38	0.93	0.31	0.40	0.40	0.12	5.38	1.91	3.70	0.06
50th-Percentile Queue Length [ft/ln]	119.37	9.44	23.33	7.73	10.06	10.04	3.01	134.59	47.82	92.41	1.42
95th-Percentile Queue Length [veh/ln]	8.36	0.68	1.68	0.56	0.72	0.72	0.22	9.19	3.44	6.65	0.10
95th-Percentile Queue Length [ft/ln]	208.96	17.00	41.99	13.91	18.10	18.07	5.41	229.72	86.07	166.35	2.56

Movement, Approach, & Intersection Results

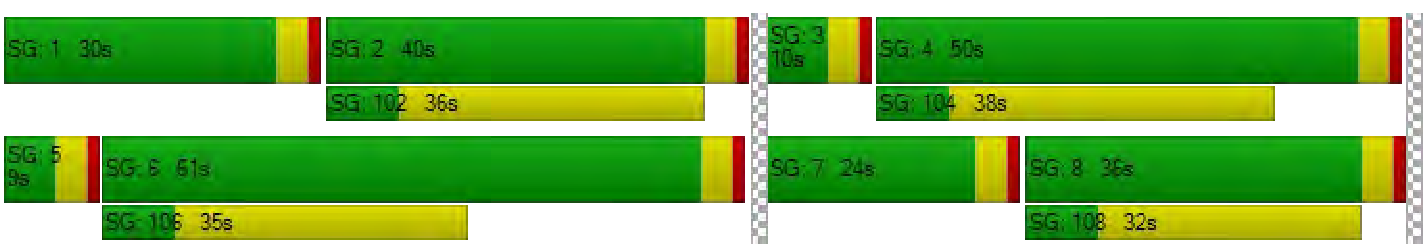
d_M, Delay for Movement [s/veh]	68.64	5.36	5.74	81.53	8.80	8.80	99.58	67.43	67.43	65.49	51.68	47.37
Movement LOS	E	A	A	F	A	A	F	E	E	E	D	D
d_A, Approach Delay [s/veh]	34.23			15.08			67.85			58.20		
Approach LOS	C			B			E			E		
d_I, Intersection Delay [s/veh]	46.32											
Intersection LOS	D											
Intersection V/C	0.243											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	54.47	54.47
I_p,int, Pedestrian LOS Score for Intersection	2.557	2.181	2.091	2.543
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	877	554	492	708
d_b, Bicycle Delay [s]	20.50	33.98	36.94	27.14
I_b,int, Bicycle LOS Score for Intersection	2.043	1.626	1.812	1.946
Bicycle LOS	B	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	82	0	0	66	14	0	0	0	129	1	17
Total Analysis Volume [veh/h]	0	329	0	0	262	57	0	0	0	515	3	67
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	32	32	32		20	20
g / C, Green / Cycle	0.53	0.53	0.53		0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.09	0.06	0.06		0.29	0.04
s, saturation flow rate [veh/h]	3560	3560	1708		1781	1589
c, Capacity [veh/h]	1898	1898	911		595	531
d1, Uniform Delay [s]	7.22	6.97	6.99		18.81	13.93
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.20	0.12	0.26		4.13	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.11	0.12		0.87	0.13
d, Delay for Lane Group [s/veh]	7.42	7.09	7.25		22.94	14.04
Lane Group LOS	A	A	A		C	B
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	0.94	0.59	0.62		6.70	0.59
50th-Percentile Queue Length [ft/ln]	23.50	14.63	15.53		167.53	14.80
95th-Percentile Queue Length [veh/ln]	1.69	1.05	1.12		10.95	1.07
95th-Percentile Queue Length [ft/ln]	42.30	26.34	27.96		273.66	26.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	7.42	0.00	0.00	7.12	7.25	0.00	0.00	0.00	22.94	22.94	14.04
Movement LOS		A			A	A				C	C	B
d_A, Approach Delay [s/veh]	7.42			7.14			0.00			21.92		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	14.23											
Intersection LOS	B											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.469	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	1.831	1.735	4.132	2.525
Bicycle LOS	A	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	239	219	14	175	0	16	0	195	0	0	0
Total Analysis Volume [veh/h]	0	956	877	57	701	0	62	1	780	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	4	55	22	22	22	
g / C, Green / Cycle	0.56	0.56	0.04	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.55	0.03	0.14	0.03	0.25	0.25	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1977	882	80	3296	461	412	412	
d1, Uniform Delay [s]	11.51	18.78	40.09	6.15	24.20	30.96	30.96	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.23	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.85	28.86	11.22	0.15	0.13	19.76	19.80	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.48	0.99	0.71	0.21	0.13	0.95	0.95	
d, Delay for Lane Group [s/veh]	12.36	47.64	51.31	6.29	24.33	50.72	50.76	
Lane Group LOS	B	D	D	A	C	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.20	21.96	1.41	1.52	0.96	9.83	9.83	
50th-Percentile Queue Length [ft/ln]	130.12	548.95	35.21	38.07	23.90	245.75	245.81	
95th-Percentile Queue Length [veh/ln]	8.95	29.64	2.53	2.74	1.72	14.97	14.97	
95th-Percentile Queue Length [ft/ln]	223.65	741.08	63.37	68.52	43.02	374.29	374.37	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.36	47.64	51.31	6.29	0.00	24.33	50.72	50.74	0.00	0.00	0.00
Movement LOS		B	D	D	A		C	D	D			
d_A, Approach Delay [s/veh]	29.24			9.68			48.80			0.00		
Approach LOS	C			A			D			A		
d_I, Intersection Delay [s/veh]	29.72											
Intersection LOS	C											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.138	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.568	1.977	2.951	4.132
Bicycle LOS	B	A	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	36.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	167	982	30	169	708	212	422	221	112	49	155	207
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	167	982	30	169	708	212	422	221	112	49	155	207
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	279	9	48	201	60	120	63	32	14	44	59
Total Analysis Volume [veh/h]	190	1116	34	192	805	241	480	251	127	56	176	235
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	16	43	0	38	56	0	13	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	62	62	9	62	62	21	38	38	4	22	22
g / C, Green / Cycle	0.07	0.48	0.48	0.07	0.48	0.48	0.16	0.29	0.29	0.03	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.02	0.06	0.16	0.15	0.14	0.07	0.08	0.02	0.05	0.15
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	247	2433	759	247	2433	759	555	1046	467	118	596	266
d1, Uniform Delay [s]	59.32	22.71	18.12	59.35	21.06	20.90	53.20	34.89	35.25	61.65	47.43	52.90
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.01	0.63	0.11	5.22	0.37	1.10	4.18	0.12	0.31	2.93	0.27	9.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.46	0.04	0.78	0.33	0.32	0.86	0.24	0.27	0.47	0.30	0.88
d, Delay for Lane Group [s/veh]	64.33	23.34	18.23	64.57	21.43	22.00	57.38	35.01	35.56	64.58	47.70	62.34
Lane Group LOS	E	C	B	E	C	C	E	D	D	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.25	7.75	0.58	3.30	5.17	4.77	7.97	3.07	3.16	0.96	2.54	8.20
50th-Percentile Queue Length [ft/ln]	81.35	193.65	14.45	82.38	129.25	119.16	199.20	76.77	79.05	23.98	63.50	204.89
95th-Percentile Queue Length [veh/ln]	5.86	12.31	1.04	5.93	8.90	8.35	12.60	5.53	5.69	1.73	4.57	12.89
95th-Percentile Queue Length [ft/ln]	146.43	307.76	26.01	148.29	222.47	208.67	314.93	138.18	142.29	43.16	114.30	322.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.33	23.34	18.23	64.57	21.43	22.00	57.38	35.01	35.56	64.58	47.70	62.34
Movement LOS	E	C	B	E	C	C	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	29.02			28.23			47.60			57.09		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	36.21											
Intersection LOS	D											
Intersection V/C	0.640											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	3.120	3.201	2.817	2.744
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	600	800	415
d_b, Bicycle Delay [s]	30.47	31.85	23.40	40.80
I_b,int, Bicycle LOS Score for Intersection	2.297	2.241	2.267	1.945
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Cook Street and Frank Sinatra Drive

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	175.00	100.00	100.00	250.00	100.00	218.00	223.00	100.00	135.00	190.00	100.00	265.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Base Volume Input [veh/h]	123	803	83	69	630	201	253	265	193	42	155	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	803	83	69	630	201	253	265	193	42	155	84
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	231	24	20	181	58	73	76	55	12	45	24
Total Analysis Volume [veh/h]	141	923	95	79	724	231	291	305	222	48	178	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	61	0	19	61	0	19	30	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	27	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	48	48	48	48	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	16	16	3	15	15	6	9	9	2	5	5
g / C, Green / Cycle	0.09	0.35	0.35	0.07	0.33	0.33	0.14	0.20	0.20	0.05	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.28	0.02	0.14	0.15	0.08	0.09	0.14	0.01	0.05	0.06
s, saturation flow rate [veh/h]	3459	1870	1809	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	308	648	627	237	1662	518	472	709	316	173	400	179
d1, Uniform Delay [s]	20.62	14.06	14.07	21.16	12.61	12.66	19.40	16.72	17.77	21.82	19.76	20.00
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.06	2.30	2.39	0.81	0.18	0.60	1.31	0.41	2.83	0.87	0.77	2.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.80	0.80	0.33	0.44	0.45	0.62	0.43	0.70	0.28	0.44	0.54
d, Delay for Lane Group [s/veh]	21.67	16.37	16.46	21.97	12.80	13.26	20.72	17.14	20.60	22.68	20.54	22.55
Lane Group LOS	C	B	B	C	B	B	C	B	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.72	4.52	4.40	0.41	1.72	1.71	1.44	1.32	2.23	0.26	0.87	1.04
50th-Percentile Queue Length [ft/ln]	17.93	113.05	109.94	10.18	43.03	42.84	35.98	33.10	55.85	6.40	21.77	25.98
95th-Percentile Queue Length [veh/ln]	1.29	8.01	7.84	0.73	3.10	3.08	2.59	2.38	4.02	0.46	1.57	1.87
95th-Percentile Queue Length [ft/ln]	32.27	200.24	195.92	18.33	77.45	77.10	64.77	59.58	100.53	11.51	39.19	46.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.67	16.41	16.46	21.97	12.80	13.26	20.72	17.14	20.60	22.68	20.54	22.55
Movement LOS	C	B	B	C	B	B	C	B	C	C	C	C
d_A, Approach Delay [s/veh]	17.05			13.60			19.35			21.46		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	16.97											
Intersection LOS	B											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	2.913	3.122	2.803	2.725
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	877	877	400	400
d_b, Bicycle Delay [s]	20.50	20.50	41.60	41.60
I_b,int, Bicycle LOS Score for Intersection	2.516	2.128	2.234	1.826
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 9: Cook Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

Intersection Setup

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	230.00	100.00	122.00	176.00	100.00	173.00	265.00	100.00	154.00	240.00	100.00	175.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	218	787	208	204	617	192	139	604	281	133	383	160
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	787	208	204	617	192	139	604	281	133	383	160
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	229	60	59	179	56	40	176	82	39	111	47
Total Analysis Volume [veh/h]	253	915	242	237	717	223	162	702	327	155	445	186
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	13	39	0	11	42	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	30	0	0	27	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	48	48	9	48	48	7	25	25	7	25	25
g / C, Green / Cycle	0.09	0.46	0.46	0.09	0.46	0.46	0.06	0.24	0.24	0.06	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.26	0.15	0.07	0.20	0.14	0.05	0.20	0.21	0.04	0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	299	1627	726	299	1627	726	226	858	383	219	851	380
d1, Uniform Delay [s]	47.33	20.86	18.28	47.10	19.41	18.03	48.17	37.71	38.12	48.27	34.79	34.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.56	1.41	1.23	4.75	0.87	1.09	4.20	1.99	6.82	4.15	0.50	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.56	0.33	0.79	0.44	0.31	0.72	0.82	0.85	0.71	0.52	0.49
d, Delay for Lane Group [s/veh]	53.90	22.27	19.51	51.85	20.27	19.12	52.37	39.70	44.94	52.42	35.29	35.45
Lane Group LOS	D	C	B	D	C	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.52	8.28	3.94	3.22	6.00	3.58	2.21	8.66	8.66	2.11	4.97	4.18
50th-Percentile Queue Length [ft/ln]	87.98	207.10	98.54	80.58	150.08	89.41	55.15	216.57	216.50	52.78	124.36	104.38
95th-Percentile Queue Length [veh/ln]	6.33	13.00	7.09	5.80	10.02	6.44	3.97	13.49	13.49	3.80	8.63	7.52
95th-Percentile Queue Length [ft/ln]	158.36	325.11	177.37	145.05	250.54	160.93	99.26	337.24	337.15	95.00	215.81	187.88

Movement, Approach, & Intersection Results

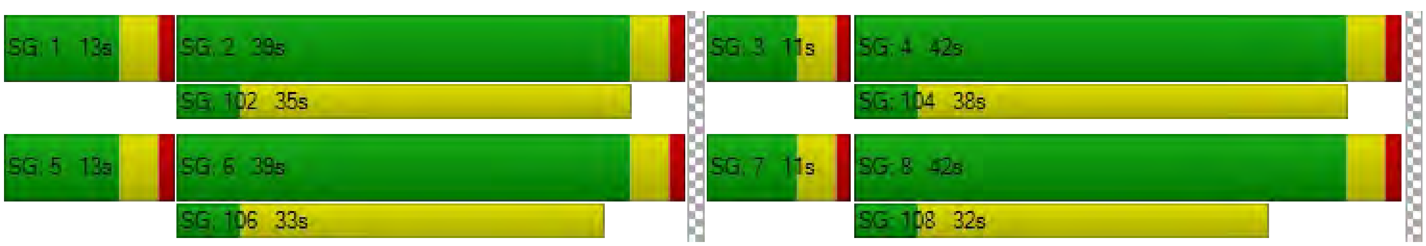
d_M, Delay for Movement [s/veh]	53.90	22.27	19.51	51.85	20.27	19.12	52.37	39.70	44.94	52.42	35.29	35.45
Movement LOS	D	C	B	D	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	27.47			26.41			42.86			38.70		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.15											
Intersection LOS	C											
Intersection V/C	0.680											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
I_p,int, Pedestrian LOS Score for Intersection	3.052	2.943	2.897	2.877
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	724	724
d_b, Bicycle Delay [s]	23.33	23.33	21.38	21.38
I_b,int, Bicycle LOS Score for Intersection	2.723	2.531	2.542	2.208
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Varner Road and Classic Club Blvd

Control Type:	Signalized	Delay (sec / veh):	1.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.208

Intersection Setup

Name	Varner Road		Varner Road		Classic Club Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	218.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Varner Road		Varner Road		Classic Club Blvd	
Base Volume Input [veh/h]	544	5	4	238	4	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	544	5	4	238	4	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	160	1	1	70	1	1
Total Analysis Volume [veh/h]	640	6	5	280	5	5
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	45	0	10	55	45	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	29	0	0	10	36	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	86	86	1	91	1	1	1
g / C, Green / Cycle	0.86	0.86	0.01	0.91	0.01	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.18	0.00	0.00	0.08	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3560	1589	3459	3560	1781	1679	1589
c, Capacity [veh/h]	3063	1367	24	3230	23	21	20
d1, Uniform Delay [s]	1.19	0.98	49.37	0.47	48.83	48.84	48.84
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	0.01	4.06	0.05	2.96	3.35	3.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.00	0.20	0.09	0.15	0.16	0.16
d, Delay for Lane Group [s/veh]	1.35	0.99	53.43	0.52	51.79	52.19	52.61
Lane Group LOS	A	A	D	A	D	D	D
Critical Lane Group	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.45	0.01	0.08	0.02	0.10	0.10	0.10
50th-Percentile Queue Length [ft/ln]	11.23	0.20	1.89	0.59	2.52	2.55	2.57
95th-Percentile Queue Length [veh/ln]	0.81	0.01	0.14	0.04	0.18	0.18	0.19
95th-Percentile Queue Length [ft/ln]	20.21	0.37	3.40	1.07	4.54	4.58	4.63

Movement, Approach, & Intersection Results

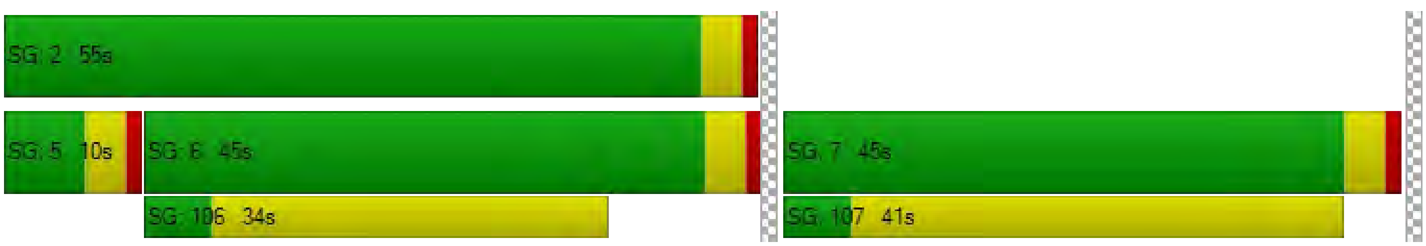
d_M, Delay for Movement [s/veh]	1.35	0.99	53.43	0.52	51.93	52.47
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	1.34		1.45		52.20	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	A					
Intersection V/C	0.208					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.611	2.311
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	50.00	50.00	50.00
I_b,int, Bicycle LOS Score for Intersection	4.665	4.368	4.149
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Avenue 38 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.075

Intersection Setup

Name	Varner Road		Varner Road		Avenue 38	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Varner Road		Varner Road		Avenue 38	
Base Volume Input [veh/h]	486	1	16	212	0	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	486	1	16	212	0	33
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	143	0	5	62	0	10
Total Analysis Volume [veh/h]	572	1	19	249	0	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.08
d_M, Delay for Movement [s/veh]	0.00	0.00	8.67	0.00	16.80	12.49
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.00	0.24	0.24
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.45	0.00	6.07	6.07
d_A, Approach Delay [s/veh]	0.00		0.61		12.49	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.74					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 12: Berkey Drive and Varner Road

Control Type:	All-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Peak Hour Factor	1.0000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	11	6	4	75	6	103	99	11
Total Analysis Volume [veh/h]	0	0	0	92	43	26	18	299	24	412	398	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]		459	491	543	481	519	543	593
Degree of Utilization, x		0.20	0.09	0.05	0.04	0.62	0.79	0.72

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.74	0.29	0.15	0.12	4.22	7.31	5.98
95th-Percentile Queue Length [ft]		18.50	7.17	3.76	2.91	105.51	182.82	149.47
Approach Delay [s/veh]	0.00	11.57			19.88		26.11	
Approach LOS	A	B			C		D	
Intersection Delay [s/veh]	22.82							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 13: Washington Street and Avenue 38

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Washington St		Washington St		Avenue 38	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Washington St		Washington St		Avenue 38	
Base Volume Input [veh/h]	24	354	162	5	11	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	354	162	5	11	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	104	48	1	3	2
Total Analysis Volume [veh/h]	28	416	191	6	13	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	7.67	0.00	0.00	0.00	13.90	9.27
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.00	0.10	0.03
95th-Percentile Queue Length [ft/ln]	1.56	0.00	0.00	0.00	2.41	0.71
d_A, Approach Delay [s/veh]	0.48		0.00		12.14	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.724

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	364	761	743	244	590	149	57	127	137	554	193	224
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	364	761	743	244	590	149	57	127	137	554	193	224
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	96	200	196	64	155	39	15	33	36	146	51	59
Total Analysis Volume [veh/h]	383	801	782	257	621	157	60	134	144	583	203	236
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	12	0	11	9	0	11	38	0	19	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	32	32	32	7	29	29	4	10	10	15	21	21	21
g / C, Green / Cycle	0.13	0.40	0.40	0.40	0.09	0.37	0.37	0.05	0.12	0.12	0.19	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.11	0.22	0.25	0.25	0.07	0.12	0.10	0.03	0.04	0.09	0.17	0.09	0.09	0.09
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1664	1589
c, Capacity [veh/h]	435	1434	640	640	306	1862	581	85	433	193	649	490	436	416
d1, Uniform Delay [s]	34.48	18.46	18.97	18.97	36.01	18.39	17.91	37.65	32.15	34.03	31.83	23.91	23.91	23.91
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.98	1.58	4.30	4.30	6.18	0.48	1.14	10.31	0.40	5.60	4.78	0.39	0.43	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.56	0.61	0.61	0.84	0.33	0.27	0.71	0.31	0.74	0.90	0.33	0.33	0.33
d, Delay for Lane Group [s/veh]	40.47	20.03	23.28	23.28	42.19	18.87	19.06	47.96	32.56	39.62	36.61	24.29	24.34	24.36
Lane Group LOS	D	C	C	C	D	B	B	D	C	D	D	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.93	5.68	6.15	6.15	2.68	2.73	2.14	1.38	1.19	2.94	5.76	2.43	2.17	2.07
50th-Percentile Queue Length [ft/ln]	98.29	141.9	153.7	153.7	66.99	68.18	53.46	34.52	29.63	73.53	143.9	60.63	54.13	51.76
95th-Percentile Queue Length [veh/ln]	7.08	9.59	10.22	10.22	4.82	4.91	3.85	2.49	2.13	5.29	9.69	4.37	3.90	3.73
95th-Percentile Queue Length [ft/ln]	176.9	239.6	255.4	255.4	120.58	122.72	96.22	62.13	53.34	132.36	242.3	109.1	97.43	93.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.47	20.03	23.28	42.19	18.87	19.06	47.96	32.56	39.62	36.61	24.30	24.35
Movement LOS	D	C	C	D	B	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	25.30			24.69			38.30			31.33		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	27.58											
Intersection LOS	C											
Intersection V/C	0.724											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	8.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	0.00	32.40
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.074	0.000	3.084
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	125	850	1050
d_b, Bicycle Delay [s]	32.40	35.16	13.23	9.03
I_b,int, Bicycle LOS Score for Intersection	2.641	2.129	1.838	2.403
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.945

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	1584	469	239	1115	0	250	7	846	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1584	469	239	1115	0	250	7	846	0	0	0
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	435	129	66	306	0	69	2	232	0	0	0
Total Analysis Volume [veh/h]	0	1741	515	263	1225	0	275	8	930	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	74	83	0	0	47	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	63	63	12	79	43	43	43	
g / C, Green / Cycle	0.48	0.48	0.10	0.61	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.42	0.45	0.08	0.24	0.08	0.08	0.33	
s, saturation flow rate [veh/h]	3560	1668	3459	5094	1781	1786	2813	
c, Capacity [veh/h]	1715	804	331	3098	588	590	929	
d1, Uniform Delay [s]	30.20	31.76	57.49	13.13	31.65	31.64	43.50	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.67	19.47	4.37	0.38	0.21	0.21	13.95	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.88	0.94	0.80	0.40	0.24	0.24	1.00	
d, Delay for Lane Group [s/veh]	36.87	51.22	61.86	13.51	31.86	31.85	57.44	
Lane Group LOS	D	D	E	B	C	C	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	22.20	26.02	4.44	6.17	3.31	3.30	16.56	
50th-Percentile Queue Length [ft/ln]	555.00	650.51	110.90	154.17	82.64	82.61	414.03	
95th-Percentile Queue Length [veh/ln]	29.93	34.39	7.89	10.24	5.95	5.95	23.25	
95th-Percentile Queue Length [ft/ln]	748.18	859.65	197.25	255.99	148.75	148.71	581.25	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	38.82	51.22	61.86	13.51	0.00	31.86	31.85	57.44	0.00	0.00	0.00
Movement LOS		D	D	E	B		C	C	F			
d_A, Approach Delay [s/veh]		41.65			22.05			51.47			0.00	
Approach LOS		D			C			D			A	
d_I, Intersection Delay [s/veh]	38.17											
Intersection LOS	D											
Intersection V/C	0.945											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	60.10
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.120
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	77	1215	662	0
d_b, Bicycle Delay [s]	60.10	10.00	29.11	65.00
I_b,int, Bicycle LOS Score for Intersection	2.800	2.378	3.561	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 16: Washington Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	0	1	0	1
Pocket Length [ft]	189.00	100.00	100.00	222.00	100.00	200.00	240.00	100.00	100.00	223.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	259	1277	37	285	1282	451	563	600	162	63	209	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	1277	37	285	1282	451	563	600	162	63	209	166
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	343	10	77	345	121	151	161	44	17	56	45
Total Analysis Volume [veh/h]	278	1373	40	306	1378	485	605	645	174	68	225	178
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	43	0	13	41	0	22	55	0	9	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	26	0	0	29	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	59	59	9	57	57	18	31	31	5	18	18
g / C, Green / Cycle	0.09	0.49	0.49	0.08	0.48	0.48	0.15	0.26	0.26	0.04	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.26	0.09	0.27	0.31	0.17	0.23	0.23	0.04	0.06	0.11
s, saturation flow rate [veh/h]	3459	3560	1843	3459	5094	1589	3459	1870	1736	1781	3560	1589
c, Capacity [veh/h]	319	1757	909	262	2429	758	520	477	443	76	524	234
d1, Uniform Delay [s]	53.79	20.85	20.86	55.49	22.52	23.64	51.01	43.00	43.20	57.23	46.59	49.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.33	1.15	2.21	85.49	0.97	4.11	78.67	6.05	7.58	28.28	0.56	5.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.53	0.53	1.17	0.57	0.64	1.16	0.88	0.90	0.90	0.43	0.76
d, Delay for Lane Group [s/veh]	61.13	22.00	23.07	140.98	23.49	27.76	129.68	49.05	50.77	85.51	47.15	54.19
Lane Group LOS	E	C	C	F	C	C	F	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.47	9.09	9.68	7.06	9.37	11.01	13.47	12.75	12.25	2.65	3.11	5.45
50th-Percentile Queue Length [ft/ln]	111.63	227.24	242.06	176.53	234.19	275.22	336.66	318.76	306.24	66.20	77.75	136.26
95th-Percentile Queue Length [veh/ln]	7.93	14.03	14.79	12.00	14.39	16.45	20.84	18.61	17.99	4.77	5.60	9.28
95th-Percentile Queue Length [ft/ln]	198.27	350.85	369.64	300.09	359.67	411.26	521.10	465.16	449.74	119.17	139.94	231.98

Movement, Approach, & Intersection Results

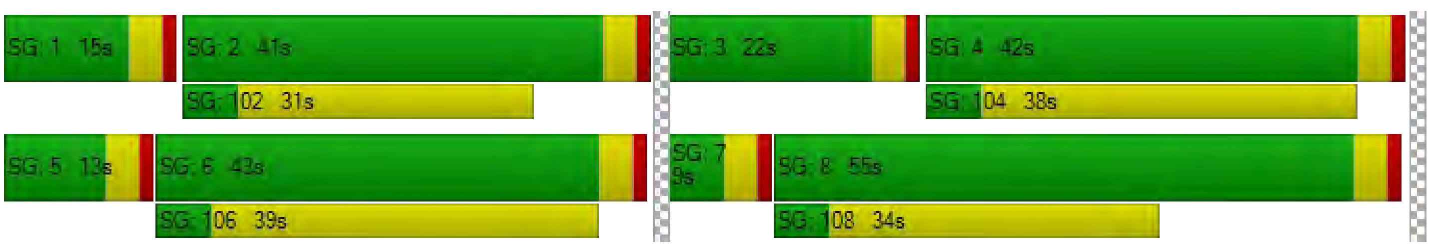
d_M, Delay for Movement [s/veh]	61.13	22.35	23.07	140.98	23.49	27.76	129.68	49.65	50.77	85.51	47.15	54.19
Movement LOS	E	C	C	F	C	C	F	D	D	F	D	D
d_A, Approach Delay [s/veh]		28.74			41.02			83.79			55.35	
Approach LOS		C			D			F			E	
d_I, Intersection Delay [s/veh]	49.16											
Intersection LOS	D											
Intersection V/C	0.776											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.144	3.333	2.860	2.706
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	617	850	633
d_b, Bicycle Delay [s]	27.34	28.70	19.84	28.02
I_b,int, Bicycle LOS Score for Intersection	2.490	2.753	2.734	1.948
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	79	876	381	174	714
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	25	281	122	56	229
Total Analysis Volume [veh/h]	706	101	1123	488	223	915
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	26	26	6	36
g / C, Green / Cycle	0.26	0.26	0.44	0.44	0.10	0.60
(v / s)_i Volume / Saturation Flow Rate	0.20	0.06	0.22	0.31	0.06	0.26
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	909	418	2224	694	350	2151
d1, Uniform Delay [s]	20.53	17.45	12.25	13.78	25.98	6.35
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.30	0.82	5.89	1.94	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.24	0.51	0.70	0.64	0.43
d, Delay for Lane Group [s/veh]	22.00	17.75	13.08	19.67	27.92	6.97
Lane Group LOS	C	B	B	B	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.37	1.05	3.29	5.71	1.54	2.47
50th-Percentile Queue Length [ft/ln]	109.19	26.29	82.22	142.74	38.50	61.77
95th-Percentile Queue Length [veh/ln]	7.79	1.89	5.92	9.63	2.77	4.45
95th-Percentile Queue Length [ft/ln]	194.87	47.32	147.99	240.71	69.31	111.19

Movement, Approach, & Intersection Results

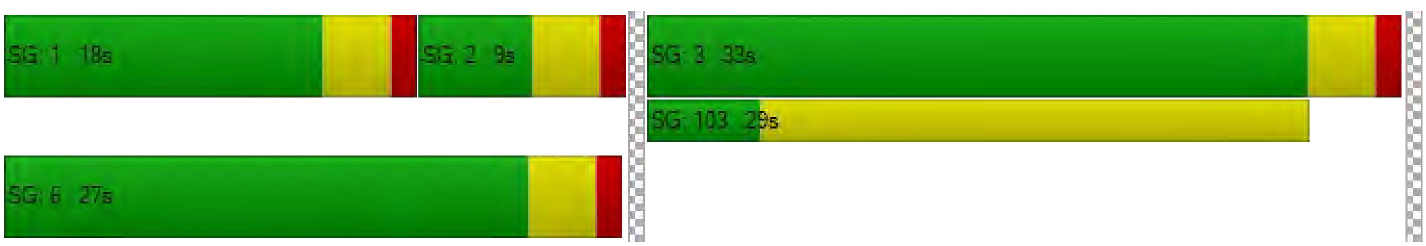
d_M, Delay for Movement [s/veh]	22.00	17.75	13.08	19.67	27.92	6.97
Movement LOS	C	B	B	B	C	A
d_A, Approach Delay [s/veh]	21.46		15.07		11.07	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	15.24					
Intersection LOS	B					
Intersection V/C	0.719					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.583	0.000	2.904
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.018	5.071
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix C

Project Trip Generation

Appendix C

Riverside County Arena – Transportation Analysis

Trip Generation Parameters

Trip generation estimates consider numerous factors in determining person and vehicle trips, including: mode of arrival, auto occupancy, and proportion of trips arriving in each pre-event hour and departing in each post-event hour. The likely origins of patrons are considered under trip distribution which is discussed separately.

Various sources were reviewed in arriving at trip estimates for the Arena including national research and data from other arenas and stadiums in California. National Sources included ULI data[1], FHWA[2] data, and Institute of Transportation Engineers data[3]. Sources from other facilities included STAPLES Center in Los Angeles[4], and arenas in Seattle[5], Sacramento[6], San Francisco[7],and Virginia Beach[8], as well as soccer stadiums in Carson[9], CA. and Sacramento[10], CA (these being a similar size and also sporting facilities). As would be expected, transportation characteristics varied between these sources and facilities largely being dependent on the location of the facility (downtown or suburban) and proximity to public transit.

Mode of Arrival

The percentage arriving by auto varied from 54% to 84% for sites in downtown or higher density development locations with proximity to good transit, and in the 90% to 98% range for sites in more suburban or lower density development locations and/or locations with little transit service.

For these latter sites, the percentage arriving by auto ranged from 90% to 98%, the percentage by walk ranged from 1.5% to 2.5%, and the percentage by bicycle from negligible to 0.5% to 2%.

The Riverside County Arena would be located just north of the I-10 Freeway, and east of Cook Street. There is no current transit service to the site, and it is not currently proximate to adjacent

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[1] Transportation and Parking Issues, ULI, 1982
[2] Managing Travel for Planned Special Events, Federal Highway Administration, September, 2003.
[3] Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2018.
[4] Los Angeles Sports and Entertainment Complex (inc. STAPLES Center), Draft Environmental Impact Report, City of Los Angeles, March 1997.
[5] Seattle Arena Multimodal Transportation Access and Parking Study, Parametrix, May 2012.
[6] Transportation Management Plan for the Golden 1 Center, Sacramento Downtown Arena LLC, September 2016.
[7] Event Center and Mixed Use Development at Mission Bay Blocks 29-32, Draft SEIR, City of San Francisco, June 2015.
[8] Virginia Beach Arena, Feasibility Study, City of Virginia Beach, August 2012.
[9] National Training Center at CSUDH Traffic Study, The Mobility Group, 2001. And Home Depot Center Traffic Management Plan, The Mobility Group, May, 2003
[10] Draft Major League Soccer (MLS) Stadium Event Transportation Management Plan (TMP), City of Sacramento, June 2016

supporting commercial uses such as restaurants, retail, and office uses. While there are restaurants and hotels in nearby Palm Desert, Rancho Mirage and La Quinta, they are not close enough to the arena to enable patrons to walk to the arena, so if patrons visited or stayed in such establishments they would have to drive to the arena. Access to the arena would therefore primarily be by car. Table C.1 summarizes the mode of arrival estimates.

Table C. 1 Mode of Arrival

Mode of Arrival	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Transit	0%	0%	0%	0%	0%	0%
Hotel/Other Shuttle	3%	2%	0%	2%	5%	0%
Walk	0%	0%	0%	0%	0%	0%
Bicycle	0%	0%	0%	0%	0%	0%
Uber/Lyft	5%	5%	3%	5%	5%	0%
Total Auto	92%	93%	97%	93%	90%	100%

The parameters are generally the same across event types, abut have been adjusted slightly in some cases to reflect the type of use (e.g. family shows and other various events). These are considered to be conservative for purposes of analysis. It is assumed there would be no walk, bicycle, and transit trips. It is anticipated that a high proportion of event patrons would be tourists staying in the Coachella Valley. A small percentage of arrivals could therefore by hotel or other shuttles – generally 2-3%.

Patrons could also use Uber/Lyft. Rideshare through the use of network transportation companies such as Uber & Lyft is becoming increasingly popular, although there is very little data on specific usage at particular land uses or for events. A recent nationwide study showed that these trips comprised 1 to 3% of vehicle miles travelled in six major metro areas. It may reasonably be expected that the proportion of trips would be higher for events at arenas. Data from 2018 for a mid-size sports stadium estimated that 5% of trips used rideshare companies. Based on this information it was assumed that a conservatively low 5% of trips would use rideshare modes (Uber/Lyft) for events at the Arena.

Overall, it is estimated that between 92% and 100% of patrons would arrive by auto (97% to 100% including rideshare). These estimates are consistent with the research discussed earlier above.

Slight adjustments were made for certain types if events. For Family Events, because of their family group nature, it was assumed that no arrivals would occur by Hotel/Other Shuttle and the proportion using Uber/Lyft would be slightly lower. For Other – Various Events, it was assumed the proportion using Hotel/Other shuttles would be slightly higher as more patrons could be staying in organized groups in hotels for these events. For G-League games, because of the relatively small attendance it was assumed all patrons would arrive by auto.

Auto Occupancy

The review of the various sources identified above, showed that auto occupancy ranges in most cases from 2.3 to 2.7, with an average for arenas of 2.5. For the Arena an average of 2.5 was assumed for all events, except for Family Show where it as assumed to be higher at 3.0 due to the higher group nature of families. See Table C.2.

Table C.2 . Auto Occupancy

Vehicle Type	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Auto	2.5	2.5	3.0	2.5	2.5	2.5
Uber/Lyft	2.5	2.5	3.0	2.5	2.5	2.5

Time of Arrival and Departure

Events will typically start at 7;00 pm. Patrons tend to arrive during the two hours or more before the event. Some will arrive early, the majority will arrive in the hour before the event, and a small proportion will typically arrive after the start of the event. The majority of patrons leave during the hour after the event, although some typically leave before the event ends.

Table C.3 shows the estimated distribution of patron arrivals and departures. Based on the data sources described earlier, and considering the characteristics of the local area, it is estimated that for the Arena about 20% of patrons would arrive between 5:00 and 6:00 pm (the typical PM peak hour), 70% would arrive between 6:00 and 7:00 pm (the pre-event hour), and 10% would arrive after the start of the event (after 7:00 pm).

Table C.3 also shows the estimated distribution of patron departures. It was estimated that 10% of patrons would leave before the end of the event, and 90% would leave in the hour after the end of the event (post-event hour).

Arrival and departures times are discussed further in subsequent sections regarding traffic analysis.

Table C.3. Percent of Trips by Hour

Hour	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
% in Roadway Peak Hour 5-6 PM	20%	20%	20%	20%	20%	0%
% in Pre-Event Hour 6-7 PM	70%	70%	70%	70%	70%	90%
% in Event Starting Hour 7-8PM	10%	10%	10%	10%	10%	10%
% in Post Event Hour	90%	90%	90%	90%	90%	90%

Employee Trips

Information on the likely number of employees has been provided by the Oak View Group. There will be both regular employees, and event employees at the arena. On non-event days there will be up to 60 regular employees. On event days, there will be both regular and event employees.

The estimated number of employees by event type is shown in Table C.4.

For conservative purposes it is assumed that all employees drive, and make two trips a day – to and from work. For Non-Event Days, work hours will typically be 9:00/9:30am to 6:00/6:30pm, so these trips will occur outside the roadway peak hours (8-9am and 5-6pm).

For Event Days, regular employees will arrive after the AM peak hour, and depart after the PM peak hour. For event employees, none will travel in the AM peak hour. Event employees arrive about two-and-a-half hours before the event start time of 7:00pm, so will travel outside of the PM peak hour and the Pre-Event hour. Approximately 75% of event employees will depart in the Post-Event hour. Employee trips are shown in Table C-5.

Table C.4 Employees by Event

Event	*Maximum Event*			*Average Event*		
	Regular	*Event*	*Total*	*Regular*	*Event*	*Total*
Concert	45	125	170	40	75	115
AHL	80	90	170	70	70	140
Family	30	80	110	25	50	75
Other – Sport	40	90	130	25	60	85
Other – Various	40	90	130	10	20	30
G League	25	30	55	20	25	45

Community Ice Trips

The Training Center ice sheet would be open about nine months of the year (closed in the three summer months). It would be used about 50% of the time by the AHL team for practice. When not in use by the AHL team, the training ice rink would be available as a community ice facility on non-event days (approximately 135 days a year). It is anticipated that it would be open 7 days a week and for 6 to 8 hours a day, with typically 20 to 40 people using it per hour. It could be used for public skating sessions, skate/hockey lessons, or hockey leagues.

Use of the facility is estimated as an average 20-40 persons in attendance per hour. A conservative total of 40 persons was assumed, with an average stay of one hour, and auto occupancy of 1.0. Daily trips were therefore estimated at 640 trips per day (40 persons / hour x 8 hours = 320 persons per hour, times 2 trips per person). Employee trips are accounted for in Table C-5.

Trip Generation Estimates – Patron Vehicle Trips

Based on the above parameters, the estimated patron trips by event type and size, and by mode, are shown in Tables C.6 through C.11.

Trips by shuttle were converted to shuttle bus vehicle trips assuming an average 20 person per shuttle bus. Patron trips using private vehicles will all inbound before the event and all outbound after the event. Shuttle vehicle and TNC vehicles will be both inbound and outbound before and after the event, as they drop-off/pick-up.

Trip Generation Estimates – Total Vehicle Trips

Table C.12 shows patron, employee, shuttle and TNC trips totaled to provide total vehicle trip generation estimates by event year and by hour.

These estimates have been used in a comparison of 2006 Specific Plan and Amended Specific Plan Trips, and have also been used in the analyses of traffic conditions.

Table C-5 Employee Trip Estimates 11/12/2020

Event	Attendance	Employees			Trips				
		Regular	Event	Total	AM Peak Hour	PM Peak Hour 5 - 6 PM	Pre-Event Hour 6 - 7 PM	Post-Event Hour	Daily
Concert	Sellout	45	125	170	0	0	0	128	340
	Average	40	75	115	0	0	0	86	230
AHL	Sellout	80	90	170	0	0	0	128	340
	Average	70	70	140	0	0	0	105	280
Family	Sellout	30	80	110	0	0	0	83	220
	Average	25	50	75	0	0	0	56	150
Other-Sport	Sellout	40	90	130	0	0	0	98	260
	Average	25	60	85	0	0	0	64	170
Other-Various	Sellout	40	90	130	0	0	0	98	260
	Average	10	20	30	0	0	0	23	60
G-League	Sellout	25	30	55	0	0	0	41	110
	Average	20	25	45	0	0	0	34	90
Non-Event Days		60	0	60	6	6	6	0	120

Notes: See text for explanation of employee working hours.
Post-Event Hour is 9:30-10:30pm for AHL and other events, and 11:00-12:00midnite for concerts.

Table C-6. Riverside County Arena 10/6/2020

Trip Generation Estimates Concert - Sell Out
Concert - Average

Mode of Travel	Concert Sellout 11,000 Seats			Concert Average 7,500 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	3%	330		3%	225
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	5%	550		5%	375
Auto	92%	10,120		92%	6,900
Total	100%	11,000		100%	7,500
Auto Occupancy / Trips					
Uber/Lyft	2.5	220		2.5	150
Auto	2.5	4,048		2.5	2,760
Total Auto Trips		4,268			2,910
% & No. of Auto Trips in Pre-Event Hour 6-7pm	70%	2,988		70%	2,037
Auto Trips / Seat		0.388			0.388
% & No. of Auto Trips in PM Peak Hour 5-6pm	20%	854		20%	582
% & No. of Auto Trips in Post-Event Hour	90%	3,841		90%	2,619

Table C-7. Riverside County Arena 10/6/2020

Trip Generation Estimates

AHL - Sell Out
AHL - Average

Mode of Travel	AHL Sellout 9,918 Seats			AHL Average 7,500 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	2%	198		2%	150
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	5%	496		5%	375
Auto	93%	9,224		93%	6,975
Total	100%	9,918		100%	7,500
Auto Occupancy / Trips					
Uber/Lyft	2.5	198		2.5	150
Auto	2.5	3,689		2.5	2,790
Total Auto Trips		3,888			2,940
% & No. of Auto Trips in Pre-Event Hour 6-7pm	70%	2,721		70%	2,058
Auto Trips / Seat		0.392			0.392
% & No. of Auto Trips in PM Peak Hour 5-6pm	20%	778		20%	588
% & No. of Auto Trips in Post-Event Hour	90%	3,499		90%	2,646

Table C-8. Riverside County Arena 10/6/2020

Trip Generation Estimates

Family Show - Max
Family Show - Average

Mode of Travel	Family Show 5,000 Seats			Family Show 4,000 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	0%	0		0%	0
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	3%	150		3%	120
Auto	97%	4,850		97%	3,880
Total	100%	5,000		100%	4,000
Auto Occupancy / Trips					
Uber/Lyft	3.0	50		3.0	40
Auto	3.0	1,617		3.0	1,293
Total Auto Trips		1,667			1,333
% & No. of Auto Trips in Pre-Event Hour 6-7pm	70%	1,167		70%	933
Auto Trips / Seat		0.333			0.333
% & No. of Auto Trips in PM Peak Hour 5-6pm	20%	333		20%	267
% & No. of Auto Trips in Post-Event Hour	90%	1,500		90%	1,200

Table C-9. Riverside County Arena 10/6/2020

Trip Generation Estimates

Other Sport - Max
Other Sport - Average

Mode of Travel	Other Sport Max 10,000 Seats			Other Sport Average 7,000 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	2%	200		2%	140
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	5%	500		5%	350
Auto	93%	9,300		93%	6,510
Total	100%	10,000		100%	7,000
Auto Occupancy / Trips					
Uber/Lyft	2.5	200		2.5	140
Auto	2.5	3,720		2.5	2,604
Total Auto Trips		3,920			2,744
% & No. of Auto Trips in Pre-Event Hour 6-7pm	70%	2,744		70%	1,921
Auto Trips / Seat		0.392			0.392
% & No. of Auto Trips in PM Peak Hour 5-6pm	20%	784		20%	549
% & No. of Auto Trips in Post-Event Hour	90%	3,528		90%	2,470

Table C-10. Riverside County Arena 10/6/2020

Trip Generation Estimates

Other Various - Max
Other Various - Average

Mode of Travel	Other Various Max 3,000 Seats			Other Various Average 800 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	5%	150		5%	40
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	5%	150		5%	40
Auto	90%	2,700		90%	720
Total	100%	3,000		100%	800
Auto Occupancy / Trips					
Uber/Lyft	2.5	60		2.5	16
Auto	2.5	1,080		2.5	288
Total Auto Trips		1,140			304
% & No. of Auto Trips in Pre-Event Hour	70%	798		70%	213
Auto Trips / Seat		0.380			0.380
% & No. of Auto Trips in PM Peak Hour 5-6pm	20%	228		20%	61
% & No. of Auto Trips in Post-Event Hour	90%	1,026		90%	274

Table C-11. Riverside County Arena 10/6/2020

Trip Generation Estimates

G League - Max
G League - Average

Mode of Travel	G League Max 1,000 Seats			G League Average 750 Seats	
	%	Trips		%	Trips
Public Transit	0%	0		0%	0
Hotel / Other Shuttle	0%	0		0%	0
Walk	0%	0		0%	0
Bicycle	0%	0		0%	0
Uber/Lyft	0%	0		0%	0
Auto	100%	1,000		100%	750
Total	100%	1,000		100%	750
Auto Occupancy / Trips					
Uber/Lyft	2.5	0		2.5	0
Auto	2.5	400		2.5	300
Total Auto Trips		400			300
% & No. of Auto Trips in Pre-Event Hour	90%	360		90%	270
Auto Trips / Seat		0.400			0.400
% & No. of Auto Trips in PM Peak Hour 5-6pm	0%	0		0%	0
% & No. of Auto Trips in Post-Event Hour	90%	360		90%	270

Table C-12 - Project Trip Generation

1/5/2021

Event Type	*Attendance Level*	*Number of Events*	*Trip Type*	*Daily*	*AM*	*PM (5:00 - 6:00)*	*Pre-Event (6:00 - 7:00)*	*Post Event Hour*
Concert Sellout	11,000	23	Patron	8,096	0	810	2,834	3,643
			Employee	340	0	0	0	128
			Shuttle	68	0	8	24	32
			RS	880	0	88	308	396
			Total	9,384	0	906	3,166	4,199
Concert Average	7,500	22	Patron	5,520	0	552	1,932	2,484
			Employee	230	0	0	0	86
			Shuttle	48	0	6	18	22
			RS	600	0	60	210	270
			Total	6,398	0	618	2,160	2,862
AHL Sellout	9,918	5	Patron	7,378	0	738	2,582	3,320
			Employee	340	0	0	0	128
			Shuttle	40	0	4	14	18
			RS	792	0	80	278	358
			Total	8,550	0	822	2,874	3,824
AHL Average	7,500	41	Patron	5,580	0	558	1,953	2,511
			Employee	280	0	0	0	105
			Shuttle	32	0	4	12	16
			RS	600	0	60	210	270
			Total	6,492	0	622	2,175	2,902
Family Sellout	5,000	19	Patron	3,234	0	323	1,132	1,455
			Employee	220	0	0	0	83
			Shuttle	0	0	0	0	0
			RS	200	0	20	70	90
			Total	3,654	0	343	1,202	1,628
Family Average	4,000	19	Patron	2,586	0	259	905	1,164
			Employee	150	0	0	0	56
			Shuttle	0	0	0	0	0
			RS	160	0	16	56	72
			Total	2,896	0	275	961	1,292
Other-Sport Sellout	10,000	2	Patron	7,440	0	744	2,604	3,348
			Employee	260	0	0	0	98
			Shuttle	40	0	4	14	18
			RS	800	0	80	280	360
			Total	8,540	0	828	2,898	3,824

Event Type	*Attendance Level*	*Number of Events*	*Trip Type*	*Daily*	*AM*	*PM (5:00 - 6:00)*	*Pre-Event (6:00 - 7:00)*	*Post Event Hour*
Other-Sport Average	7,000	8	Patron	5,208	0	521	1,823	2,344
			Employee	170	0	0	0	64
			Shuttle	28	0	4	10	14
			RS	560	0	56	196	252
			Total	5,966	0	581	2,029	2,674
Other-Various Sellout	3,000	10	Patron	2,160	0	216	756	972
			Employee	260	0	0	0	98
			Shuttle	32	0	4	12	16
			RS	240	0	24	84	108
			Total	2,692	0	244	852	1,194
Other-Various Average	800	10	Patron	576	0	57	201	259
			Employee	60	0	0	0	23
			Shuttle	8	0	2	4	4
			RS	64	0	8	24	30
			Total	708	0	67	229	316
G-League Sellout	1,000	1	Patron	800	0	0	360	360
			Employee	110	0	0	0	41
			Shuttle	0	0	0	0	0
			RS	0	0	0	0	0
			Total	910	0	0	360	401
G-League Average	750	24	Patron	600	0	0	270	270
			Employee	90	0	0	0	34
			Shuttle	0	0	0	0	0
			RS	0	0	0	0	0
			Total	690	0	0	270	304
Non-Event (Community Ice)	NA	135 Days	Patron	640	0	80	80	0
			Employee	120	6	6	6	0
			Total	760	6	86	86	0

Appendix D

Project Trip Distribution

Appendix D

Riverside County Arena - Transportation Analysis

Patron Trip Distribution

The projected market area and patron origins for the planned Riverside County Arena. It is based on market information and expectations provided by Oak View Group[1], and considerations of population, travel distance, and the characteristics of the Coachella Valley and surrounding region.

As owner of the AHL team, and operator of the arena, Oak View Group has conducted market review and research of the likely attendance levels and market origins of patrons for the events that will be held at the arena.
The maximum driving time expected for American Hockey League (AHL) events is about 45 minutes. That includes all of the Coachella Valley, much of the High Desert, the Banning Pass, and Moreno Valley. It is considered likely that AHL events would draw a very small amount from the Imperial Valley due to the distance involved, and would not draw from the Riverside / San Bernardino area due to its closer proximity to the Toyota Arena in Ontario.

The maximum driving time expected for a concert event is about 60 minutes. This extends the market area to include the Salton Sea communities, the Hemet Area, and Riverside / San Bernardino. Although the Imperial Valley communities are generally more than an hour's drive time it is expected concert attendance for marquee high demand events may also draw from there. It is expected that less than 10% of attendees would draw from beyond a 60 minute drive time.

It is expected that attendance would draw from visitors staying at hotels or from tourist destinations in these areas. Given the destination qualities of the area, it is likely that high profile concerts will draw visitors who plan trips around concerts and stay in the Coachella Valley,

The projections of patron origin were based on the market expectations of Oak View Group, the population distribution within the Coachella Valley and the greater market area, and consideration of driving times (i.e. more patrons would drive shorter distances and fewer would drive longer distances).

These expectations provided estimates of the proportions of patrons that would originate from within the Coachella Valley, and from outside the Valley. These estimates are shown in Table D.1.

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[1] Oak View Group, August/September, 2019; and September, 2020.

Table D.1. Patron Trip Origins – Regional Level

Patron Trip Origins	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Within Coachella Valley	58%	71%	85%	80%	95%	100%
Outside Coachella Valley	42%	29%	15%	20%	5%	0%

The estimates in Table D.1 reflect the characteristics discussed above. Family shows, due to their nature, are considered to have a higher proportion trips from the Coachella Valley. Other Sports would similarly be more locally and Coachella Valley oriented due to the mix of local type events. The Other Various events would be almost exclusively Coachella Valley oriented due to their nature of conferences, cultural, convention and other local events. G League games are expected to draw exclusively from the Coachella Valley.

A more detailed analysis was conducted within this framework. A total of 30 individual jurisdictions were identified in 11 sub-areas. Population estimates[2] were identified for each jurisdiction along with the trip distance to the arena site. The percentage of patron origins from each jurisdiction was then estimated based on the population and the driving distance[3]. The estimates were then aggregated to the 11 sub-areas, and the resulting estimated distribution of patron origins is shown in Table D.2.

[2] Population estimates were obtained from the US Census 2019 Vintage Estimate " Annual Estimates of the Resident Population for Incorporated Places in California, April 1, 2010 to July, 2109. For the Morongo Valley, Cabazon, Thermal, Salton City, Twenty Nine Palms, and Westmoreland, estimates were obtained from Google searches of 2010 Census and 2018 Census estimates.

[3] A simple linear decay function was used.

Table D-2 Estimated Origins of Patrons 10/7/2020

Area	Location	Concert	AHL	Family	Other Sport	Other Various	G League
Coachella Valley	Palm Springs	10%	15%	17%	16%	16%	21%
	Cathedral City	10%	12%	15%	15%	18%	17%
	Mid Coachella Valley	14%	17%	22%	20%	30%	24%
	East Coachella Valley	20%	23%	27%	25%	27%	32%
	North PS/Desert Hot Springs	4%	4%	4%	4%	4%	6%
	Sub-Total	**58%**	**71%**	**85%**	**80%**	**95%**	**100%**
High Desert		3%	4%	2%	2%	--	--
Banning Pass		9%	12%	8%	9%	5%	--
Moreno Valley		10%	8%	5%	7%	--	--
Hement Area		4%	--	--	--	--	--
Salton Sea / Imperial Valley		6%	5%	--	2%	--	--
Riverside / San Bernardino		10%	--	--	--	--	--
	Sub-Total	**42%**	**29%**	**15%**	**20%**	**5%**	**0%**
Total		100%	100%	100%	100%	100%	100%

Mid Coachella Valley:	Includes Rancho Mirage, Palm Desert, Indian Wells
East Coachella Valley:	Includes La Quinta, Indio, Coachella
High Desert:	Includes Morongo Valley, Yucca Valley, Twenty Nine Palms
Banning Pass:	Includes Cabazon, Banning, Beaumont
Hement Area:	Includes Hement, San Jacinto
Salton Sea:	Includes Thermal, Mecca, Salton City
Imperial Valley:	Includes Cities south of Salton Sea

Appendix E

Updated Specific Plan Trip Totals

Table B1 **North Star SP & EIR Amended Land Use**
Sellout Concert

1/5/2021

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily	Daily Trip Rate		Daily Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Sellout Concert)[5]	NA	295.0	TSF		NA		9,384
Grand Total							39,275

Table B1 **North Star SP & EIR Amended Land Use**
Sellout Concert

1/5/2021

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout Concert)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table B1 **North Star SP & EIR Amended Land Use**
Sellout Concert

1/5/2021

PM Peak

Land Use Assumptions	Source [1] & Code	Quantity	Units	PM Peak Hour					
				Trip Rate			Total Trips		
				In	Out	Total	In	Out	Total
Proposed Uses									
Golf Course	ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) - 10%							-3	-2	-5
Net Golf Course							25	22	47
Golf Clubhouse - Office	ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) - 10%							0	-1	-1
Net Golf clubhouse - Office							0	5	5
Resort Hotel[2]	ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) - 10%							-7	-10	-17
Net Resort Hotel							67	88	155
Multi-Family Attached Residential[3]	ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) - 10%							-26	-16	-42
Net Multi-Family Attached Residential							238	142	380
Timeshare Residential[4]	ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) - 10%							-5	-9	-14
Net Timeshare Residential							49	73	122
Commercial Retail	ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) - 10%							-92	-99	-191
Net Commercial Retail							823	891	1,714
Industrial Park	ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) - 10%							-3	-12	-15
Net Industrial Park							27	110	137
Office	ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) - 10%							-4	-23	-27
Net Office							37	201	238
Total (Before Internal Reduction)							1,406	1,704	3,110
Total Net							1,266	1,532	2,798
Arena (Sellout Concert)[5]	NA	295.0	TSF	NA	NA	NA	858	48	906
Grand Total							2,124	1,580	3,704

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table B2 **North Star SP & EIR Amended Land Use**
Average Concert

1/5/2021

Daily

Land Use Assumptions		Source [1] & Code	Quantity	Units	Daily			
						Trip Rate		Total Trips
Proposed Uses								
Golf Course		ITE 430	18	Holes		30.38		547
(Reduction for internal trips) -	10%							-55
Net Golf Course								492
Golf Clubhouse - Office		ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) -	10%							-8
Net Golf clubhouse - Office								75
Resort Hotel[2]		ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) -	10%							-280
Net Resort Hotel								2,520
Multi-Family Attached Residential[3]		ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) -	10%							-552
Net Multi-Family Attached Residential								4,967
Timeshare Residential[4]		ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) -	10%							-186
Net Timeshare Residential								1,678
Commercial Retail		ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) -	10%							-1,888
Net Commercial Retail								16,987
Industrial Park		ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) -	10%							-128
Net Industrial Park								1,156
Office		ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) -	10%							-224
Net Office								2,016
Total (Before Internal Reduction)								33,212
Total Net								29,891
Arena (Average Concert)[5]		NA	295.0	TSF		NA		6,398
Grand Total								36,289

Table B2 North Star SP & EIR Amended Land Use
Average Concert

1/5/2021

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average Concert)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table B2 North Star SP & EIR Amended Land Use
Average Concert

1/5/2021

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average Concert)[5]		NA	295.0	TSF	NA	NA	NA	585	33	618
Grand Total								1,851	1,565	3,416

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table C1 **North Star SP & EIR Amended Land Use Sellout AHL** 1/5/2021

Daily

Land Use Assumptions		Source [1] & Code	Quantity	Units	Daily			
						Trip Rate		Total Trips
Proposed Uses								
Golf Course		ITE 430	18	Holes		30.38		547
(Reduction for internal trips) -	10%							-55
Net Golf Course								492
Golf Clubhouse - Office		ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) -	10%							-8
Net Golf clubhouse - Office								75
Resort Hotel[2]		ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) -	10%							-280
Net Resort Hotel								2,520
Multi-Family Attached Residential[3]		ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) -	10%							-552
Net Multi-Family Attached Residential								4,967
Timeshare Residential[4]		ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) -	10%							-186
Net Timeshare Residential								1,678
Commercial Retail		ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) -	10%							-1,888
Net Commercial Retail								16,987
Industrial Park		ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) -	10%							-128
Net Industrial Park								1,156
Office		ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) -	10%							-224
Net Office								2,016
Total (Before Internal Reduction)								33,212
Total Net								29,891
Arena (Sellout AHL)[5]		NA	295.0	TSF		NA		8,550
Grand Total								38,441

Table C1 **North Star SP & EIR Amended Land Use**
Sellout AHL

1/5/2021

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
<u>Proposed Uses</u>										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout AHL)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table C1 **North Star SP & EIR Amended Land Use**
Sellout AHL

1/5/2021

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Sellout AHL)[5]		NA	295.0	TSF	NA	NA	NA	780	42	822
Grand Total								2,046	1,574	3,620

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table C2 North Star SP & EIR Amended Land Use Average AHL

1/5/2020

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily	Trip Rate		Total Trips
<u>Proposed Uses</u>							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Average AHL)[5]	NA	295.0	TSF		NA		6,492
Grand Total							36,383

Table C2 **North Star SP & EIR Amended Land Use**
Average AHL

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average AHL)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table C2 **North Star SP & EIR Amended Land Use**
Average AHL

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average AHL)[5]		NA	295.0	TSF	NA	NA	NA	590	32	622
Grand Total								1,856	1,564	3,420

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table D1 North Star SP & EIR Amended Land Use
Sellout Family

1/5/2020

Daily

Land Use Assumptions		Source [1] & Code	Quantity	Units	Daily			
						Trip Rate		Total Trips
Proposed Uses								
Golf Course		ITE 430	18	Holes		30.38		547
(Reduction for internal trips) -	10%							-55
Net Golf Course								492
Golf Clubhouse - Office		ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) -	10%							-8
Net Golf clubhouse - Office								75
Resort Hotel[2]		ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) -	10%							-280
Net Resort Hotel								2,520
Multi-Family Attached Residential[3]		ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) -	10%							-552
Net Multi-Family Attached Residential								4,967
Timeshare Residential[4]		ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) -	10%							-186
Net Timeshare Residential								1,678
Commercial Retail		ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) -	10%							-1,888
Net Commercial Retail								16,987
Industrial Park		ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) -	10%							-128
Net Industrial Park								1,156
Office		ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) -	10%							-224
Net Office								2,016
Total (Before Internal Reduction)								33,212
Total Net								29,891
Arena (Sellout Family)[1]		NA	295.0	TSF		NA		3,654
Grand Total								33,545

Table D1 **North Star SP & EIR Amended Land Use**
Sellout Family

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout Family)[1]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table D1 **North Star SP & EIR Amended Land Use**
Sellout Family

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Sellout Family)[1]		NA	295.0	TSF	NA	NA	NA	333	10	343
Grand Total								1,599	1,542	3,141

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table D2 North Star SP & EIR Amended Land Use
Average Family

1/5/2020

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Average Family)[5]	NA	295.0	TSF		NA		2,896
Grand Total							32,787

Table D2 North Star SP & EIR Amended Land Use
Average Family

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average Family)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table D2 North Star SP & EIR Amended Land Use
Average Family

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average Family)[5]		NA	295.0	TSF	NA	NA	NA	267	8	275
Grand Total								1,533	1,540	3,073

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table E1 North Star SP & EIR Amended Land Use
Sellout Other-Sport

1/5/2020

Daily

Land Use Assumptions		Source [1] & Code	Quantity	Units	Daily			
						Trip Rate		Total Trips
Proposed Uses								
Golf Course		ITE 430	18	Holes		30.38		547
(Reduction for internal trips) -	10%							-55
Net Golf Course								492
Golf Clubhouse - Office		ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) -	10%							-8
Net Golf clubhouse - Office								75
Resort Hotel[2]		ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) -	10%							-280
Net Resort Hotel								2,520
Multi-Family Attached Residential[3]		ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) -	10%							-552
Net Multi-Family Attached Residential								4,967
Timeshare Residential[4]		ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) -	10%							-186
Net Timeshare Residential								1,678
Commercial Retail		ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) -	10%							-1,888
Net Commercial Retail								16,987
Industrial Park		ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) -	10%							-128
Net Industrial Park								1,156
Office		ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) -	10%							-224
Net Office								2,016
Total (Before Internal Reduction)								33,212
Total Net								29,891
Arena (Sellout Other-Sport)[5]		NA	295.0	TSF		NA		8,540
Grand Total								38,431

Table E1 North Star SP & EIR Amended Land Use
Sellout Other-Sport

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout Other-Sport)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table E1 North Star SP & EIR Amended Land Use
Sellout Other-Sport

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Sellout Other-Sport)[5]		NA	295.0	TSF	NA	NA	NA	786	42	828
Grand Total								2,052	1,574	3,626

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table E2 North Star SP & EIR Amended Land Use
Average Other-Sport

1/5/2020

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Average Other-Sport)[5]	NA	295.0	TSF		NA		5,966
Grand Total							35,857

Table E2 North Star SP & EIR Amended Land Use
Average Other-Sport

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
<u>Proposed Uses</u>										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average Other-Sport)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table E2 North Star SP & EIR Amended Land Use
Average Other-Sport

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average Other-Sport)[5]		NA	295.0	TSF	NA	NA	NA	551	30	581
Grand Total								1,817	1,562	3,379

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table F1 **North Star SP & EIR Amended Land Use**
Sellout Other-Various

1/5/2020

Daily

Land Use Assumptions		Source [1] & Code	Quantity	Units	Daily			
						Trip Rate		Total Trips
Proposed Uses								
Golf Course		ITE 430	18	Holes		30.38		547
(Reduction for internal trips) -	10%							-55
Net Golf Course								492
Golf Clubhouse - Office		ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) -	10%							-8
Net Golf clubhouse - Office								75
Resort Hotel[2]		ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) -	10%							-280
Net Resort Hotel								2,520
Multi-Family Attached Residential[3]		ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) -	10%							-552
Net Multi-Family Attached Residential								4,967
Timeshare Residential[4]		ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) -	10%							-186
Net Timeshare Residential								1,678
Commercial Retail		ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) -	10%							-1,888
Net Commercial Retail								16,987
Industrial Park		ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) -	10%							-128
Net Industrial Park								1,156
Office		ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) -	10%							-224
Net Office								2,016
Total (Before Internal Reduction)								33,212
Total Net								29,891
Arena (Sellout Other-Various)[5]		NA	295.0	TSF		NA		2,692
Grand Total								32,583

Table F1 North Star SP & EIR Amended Land Use
Sellout Other-Various

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout Other-Various)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table F1 North Star SP & EIR Amended Land Use
Sellout Other-Various

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Sellout Other-Various)[5]		NA	295.0	TSF	NA	NA	NA	230	14	244
Grand Total								1,496	1,546	3,042

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table F2 North Star SP & EIR Amended Land Use
Average Other-Various

1/5/2020

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Average Other-Various)[5]	NA	295.0	TSF		NA		708
Grand Total							30,599

Table F2 North Star SP & EIR Amended Land Use
Average Other-Various

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average Other-Various)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table F2 North Star SP & EIR Amended Land Use
Average Other-Various

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average Other-Various)[5]		NA	295.0	TSF	NA	NA	NA	62	5	67
Grand Total								1,328	1,537	2,865

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table G1 North Star SP & EIR Amended Land Use
Sellout G League

1/5/2020

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Sellout G League)[5]	NA	295.0	TSF		NA		910
Grand Total							30,801

Table G1 **North Star SP & EIR Amended Land Use**
Sellout G League

1/5/2020

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Sellout G League)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table G1 North Star SP & EIR Amended Land Use
Sellout G League

1/5/2020

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Sellout G League)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								1,266	1,532	2,798

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table G2 **North Star SP & EIR Amended Land Use**
Average G League

1/5/2021

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Average G League)[5]	NA	295.0	TSF		NA		690
Grand Total							30,581

Table G2 North Star SP & EIR Amended Land Use
Average G League

1/5/2021

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour					
					Trip Rate			Total Trips		
					In	Out	Total	In	Out	Total
<u>Proposed Uses</u>										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Average G League)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								813	529	1,342

Table G2 North Star SP & EIR Amended Land Use
Average G League

1/5/2021

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Average G League)[5]		NA	295.0	TSF	NA	NA	NA	0	0	0
Grand Total								1,266	1,532	2,798

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Table H1 North Star SP & EIR Amended Land Use
Community Ice

1/5/2021

Daily

Land Use Assumptions	Source [1] & Code	Quantity	Units	Daily			
					Trip Rate		Total Trips
Proposed Uses							
Golf Course	ITE 430	18	Holes		30.38		547
(Reduction for internal trips) - 10%							-55
Net Golf Course							492
Golf Clubhouse - Office	ITE 714	10.5	TSF		7.95		83
(Reduction for internal trips) - 10%							-8
Net Golf clubhouse - Office							75
Resort Hotel[2]	ITE 330	350	RM		8.00		2,800
(Reduction for internal trips) - 10%							-280
Net Resort Hotel							2,520
Multi-Family Attached Residential[3]	ITE 220	754	DU		7.32		5,519
(Reduction for internal trips) - 10%							-552
Net Multi-Family Attached Residential							4,967
Timeshare Residential[4]	ITE 265	216	DU		8.63		1,864
(Reduction for internal trips) - 10%							-186
Net Timeshare Residential							1,678
Commercial Retail	ITE 820	500.0	TSF		37.75		18,875
(Reduction for internal trips) - 10%							-1,888
Net Commercial Retail							16,987
Industrial Park	ITE 130	381.035	TSF		3.37		1,284
(Reduction for internal trips) - 10%							-128
Net Industrial Park							1,156
Office	ITE 710	230.0	TSF		9.74		2,240
(Reduction for internal trips) - 10%							-224
Net Office							2,016
Total (Before Internal Reduction)							33,212
Total Net							29,891
Arena (Community Ice)[5]	NA	295.0	TSF		NA		760
Grand Total							30,651

Table H1 North Star SP & EIR Amended Land Use Community Ice 1/5/2021

AM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	AM Peak Hour Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.39	0.37	1.76	25	7	32
(Reduction for internal trips) -	10%							-3	0	-3
Net Golf Course								22	7	29
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.68	0.04	0.72	7	1	8
(Reduction for internal trips) -	10%							-1	0	-1
Net Golf clubhouse - Office								6	1	7
Resort Hotel[2]		ITE 330	350	RM	0.27	0.10	0.37	95	35	130
(Reduction for internal trips) -	10%							-10	-3	-13
Net Resort Hotel								85	32	117
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.11	0.35	0.46	83	264	347
(Reduction for internal trips) -	10%							-8	-27	-35
Net Multi-Family Attached Residential								75	237	312
Timeshare Residential[4]		ITE 265	216	DU	0.24	0.16	0.40	52	34	86
(Reduction for internal trips) -	10%							-5	-4	-9
Net Timeshare Residential								47	30	77
Commercial Retail		ITE 820	500.0	TSF	0.58	0.36	0.94	290	180	470
(Reduction for internal trips) -	10%							-29	-18	-47
Net Commercial Retail								261	162	423
Industrial Park		ITE 130	381.035	TSF	0.32	0.08	0.40	122	30	152
(Reduction for internal trips) -	10%							-12	-3	-15
Net Industrial Park								110	27	137
Office		ITE 710	230.0	TSF	1.00	0.16	1.16	230	37	267
(Reduction for internal trips) -	10%							-23	-4	-27
Net Office								207	33	240
Total (Before Internal Reduction)								904	588	1,492
Total Net								813	529	1,342
Arena (Community Ice)[5]		NA	295.0	TSF	NA	NA	NA	6	0	6
Grand Total								819	529	1,348

Table H1 North Star SP & EIR Amended Land Use
Community Ice

1/5/2021

PM Peak

Land Use Assumptions		Source [1] & Code	Quantity	Units	PM Peak Hour: Trip Rate In	Trip Rate Out	Trip Rate Total	Total Trips In	Total Trips Out	Total Trips Total
Proposed Uses										
Golf Course		ITE 430	18	Holes	1.54	1.37	2.91	28	24	52
(Reduction for internal trips) -	10%							-3	-2	-5
Net Golf Course								25	22	47
Golf Clubhouse - Office		ITE 714	10.5	TSF	0.02	0.58	0.60	0	6	6
(Reduction for internal trips) -	10%							0	-1	-1
Net Golf clubhouse - Office								0	5	5
Resort Hotel[2]		ITE 330	350	RM	0.21	0.28	0.49	74	98	172
(Reduction for internal trips) -	10%							-7	-10	-17
Net Resort Hotel								67	88	155
Multi-Family Attached Residential[3]		ITE 220	754	DU	0.35	0.21	0.56	264	158	422
(Reduction for internal trips) -	10%							-26	-16	-42
Net Multi-Family Attached Residential								238	142	380
Timeshare Residential[4]		ITE 265	216	DU	0.25	0.38	0.63	54	82	136
(Reduction for internal trips) -	10%							-5	-9	-14
Net Timeshare Residential								49	73	122
Commercial Retail		ITE 820	500.0	TSF	1.83	1.98	3.81	915	990	1,905
(Reduction for internal trips) -	10%							-92	-99	-191
Net Commercial Retail								823	891	1,714
Industrial Park		ITE 130	381.035	TSF	0.08	0.32	0.40	30	122	152
(Reduction for internal trips) -	10%							-3	-12	-15
Net Industrial Park								27	110	137
Office		ITE 710	230.0	TSF	0.18	0.97	1.15	41	224	265
(Reduction for internal trips) -	10%							-4	-23	-27
Net Office								37	201	238
Total (Before Internal Reduction)								1,406	1,704	3,110
Total Net								1,266	1,532	2,798
Arena (Community Ice)[5]		NA	295.0	TSF	NA	NA	NA	40	46	86
Grand Total								1,306	1,578	2,884

Notes:
1. ITE Trip Rates from Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.
2. Daily rate not in the ITE. Same daily rate as the EIR used since AM & PM rates had not changed.
3. Low-rise building is assumed for a conservative estimate.
4. Recreational Homes rates were used in the EIR. Land use type was updated to Timeshare since the category is available in ITE 10th Edition.
5. Arena trips calculated separately for greater accuracy as no relevant ITE data is available.

Note : Some numbers may not add up perfectly due to rounding.

Appendix F

PM Peak Hour EAP Conditions Analysis Worksheets

Intersections

Intersection Level Of Service Report
Intersection 1: Monterey Avenue and Varner Road

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	206.00	100.00	150.00	195.00	100.00	120.00	265.00	100.00	275.00	358.00	100.00	50.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Base Volume Input [veh/h]	216	428	74	22	379	11	28	72	207	465	192	153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	18	0	0	0	0	24	0	1	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	454	97	23	402	12	30	100	220	494	205	162
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	117	25	6	104	3	8	26	57	127	53	42
Total Analysis Volume [veh/h]	236	468	100	24	414	12	31	103	227	509	211	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	53	0	9	37	0	33	11	0	47	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	26	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	69	69	3	62	62	3	11	11	11	21	29	29
g / C, Green / Cycle	0.09	0.58	0.58	0.02	0.51	0.51	0.03	0.09	0.09	0.09	0.17	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.13	0.06	0.01	0.12	0.01	0.02	0.06	0.07	0.07	0.15	0.06	0.11
s, saturation flow rate [veh/h]	3459	3560	1589	1781	3560	1589	1781	1870	1589	1589	3459	3560	1589
c, Capacity [veh/h]	304	2055	917	43	1827	816	49	174	148	148	596	847	378
d1, Uniform Delay [s]	53.59	12.36	11.45	57.98	16.10	14.34	57.75	52.23	53.15	53.15	48.21	37.06	38.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.24	0.26	0.24	11.21	0.29	0.03	12.33	3.16	7.96	7.96	3.61	0.15	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.23	0.11	0.56	0.23	0.01	0.63	0.59	0.77	0.77	0.85	0.25	0.44
d, Delay for Lane Group [s/veh]	57.83	12.61	11.69	69.19	16.39	14.37	70.08	55.39	61.12	61.12	51.82	37.21	39.77
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.67	3.09	1.25	0.85	3.20	0.17	1.10	3.14	3.67	3.67	7.67	2.54	4.29
50th-Percentile Queue Length [ft/ln]	91.65	77.18	31.37	21.36	79.88	4.22	27.54	78.38	91.79	91.79	191.85	63.60	107.20
95th-Percentile Queue Length [veh/ln]	6.60	5.56	2.26	1.54	5.75	0.30	1.98	5.64	6.61	6.61	12.22	4.58	7.68
95th-Percentile Queue Length [ft/ln]	164.98	138.92	56.46	38.45	143.79	7.59	49.57	141.0	165.2	165.2	305.43	114.47	192.11

Movement, Approach, & Intersection Results

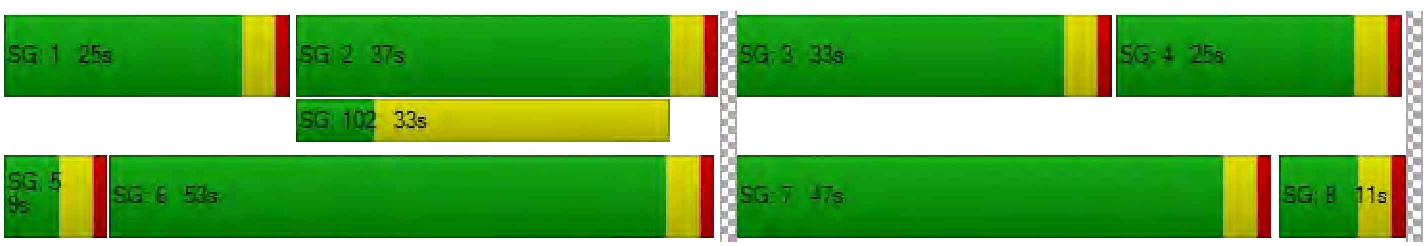
d_M, Delay for Movement [s/veh]	57.83	12.61	11.69	69.19	16.39	14.37	70.08	55.39	61.12	51.82	37.21	39.77
Movement LOS	E	B	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	25.77			19.16			60.25			46.08		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	36.76											
Intersection LOS	D											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	21.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	40.84	49.50	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.640	2.600	0.000
Crosswalk LOS	F	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	817	550	117	350
d_b, Bicycle Delay [s]	21.00	31.54	53.20	40.84
I_b,int, Bicycle LOS Score for Intersection	2.223	1.931	1.857	2.291
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Monterey Avenue and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Base Volume Input [veh/h]	0	1484	649	164	818	0	47	2	572	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	0	1	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1593	689	174	869	0	50	2	607	0	0	0
Peak Hour Factor	1.0000	0.9900	0.9900	0.9900	0.9900	1.0000	0.9900	0.9900	0.9900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	402	174	44	219	0	13	1	153	0	0	0
Total Analysis Volume [veh/h]	0	1609	696	176	878	0	51	2	613	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	41	56	0	0	20	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	66	66	66	66	66	66	66	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	34	34	6	43	15	15	15	
g / C, Green / Cycle	0.51	0.51	0.08	0.66	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.44	0.05	0.25	0.03	0.19	0.19	
s, saturation flow rate [veh/h]	5094	1589	3459	3560	1781	1591	1589	
c, Capacity [veh/h]	2594	809	294	2331	400	357	357	
d1, Uniform Delay [s]	11.64	14.17	29.18	5.24	20.48	24.66	24.66	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.13	11.54	1.96	0.47	0.14	6.15	6.16	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.62	0.86	0.60	0.38	0.13	0.86	0.86	
d, Delay for Lane Group [s/veh]	12.77	25.71	31.14	5.70	20.62	30.81	30.82	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.05	10.15	1.37	2.16	0.61	4.94	4.94	
50th-Percentile Queue Length [ft/ln]	126.33	253.71	34.28	53.97	15.31	123.58	123.50	
95th-Percentile Queue Length [veh/ln]	8.74	15.37	2.47	3.89	1.10	8.59	8.59	
95th-Percentile Queue Length [ft/ln]	218.50	384.32	61.70	97.15	27.55	214.74	214.63	

Movement, Approach, & Intersection Results

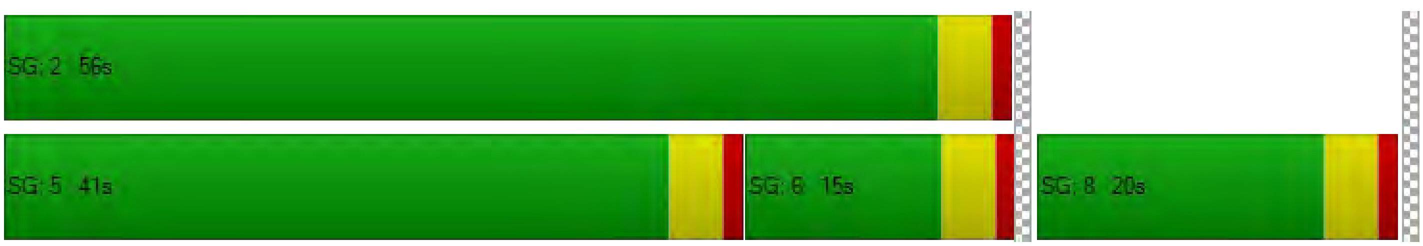
d_M, Delay for Movement [s/veh]	0.00	12.77	25.71	31.14	5.70	0.00	20.62	30.81	30.82	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	16.68			9.95			30.04			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	17.13											
Intersection LOS	B											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	52.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	1.48	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.030	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1576	485	0
d_b, Bicycle Delay [s]	22.92	1.48	18.94	33.00
I_b,int, Bicycle LOS Score for Intersection	2.827	2.429	2.659	4.132
Bicycle LOS	C	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.059

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	23	23	19	122	212	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	42	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	24	20	171	227	29
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	6	52	68	9
Total Analysis Volume [veh/h]	29	29	24	206	273	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.83	10.00	7.93	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.12	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.71	3.02	1.46	1.46	0.00	0.00
d_A, Approach Delay [s/veh]	11.41		0.83		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	36.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.551

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	125	45	105	7	67	3	2	89	53	104	114	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	373	0	0	0	0	42	0	21	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	48	484	7	71	3	2	136	56	131	123	2
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	13	129	2	19	1	1	36	15	35	33	1
Total Analysis Volume [veh/h]	141	51	515	7	76	3	2	145	60	139	131	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	62	0	9	40	0	10	36	0	23	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	88	88	1	77	77	0	17	7	24	24
g / C, Green / Cycle	0.09	0.68	0.68	0.01	0.59	0.59	0.00	0.13	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.03	0.32	0.00	0.02	0.02	0.00	0.12	0.04	0.07	0.00
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1845	1781	1778	3459	1870	1589
c, Capacity [veh/h]	169	1269	1078	17	1109	1094	6	235	197	347	295
d1, Uniform Delay [s]	57.85	6.91	9.95	64.04	11.00	11.00	64.62	55.35	60.24	46.38	43.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.25	0.06	1.52	15.47	0.06	0.06	25.84	9.70	4.57	0.68	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.04	0.48	0.42	0.04	0.04	0.31	0.87	0.71	0.38	0.01
d, Delay for Lane Group [s/veh]	68.10	6.97	11.46	79.51	11.06	11.06	90.46	65.04	64.81	47.05	43.19
Lane Group LOS	E	A	B	E	B	B	F	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.05	0.48	7.08	0.30	0.49	0.49	0.11	7.23	2.38	3.80	0.05
50th-Percentile Queue Length [ft/ln]	126.14	11.93	177.09	7.59	12.37	12.35	2.80	180.70	59.58	95.06	1.35
95th-Percentile Queue Length [veh/ln]	8.73	0.86	11.45	0.55	0.89	0.89	0.20	11.64	4.29	6.84	0.10
95th-Percentile Queue Length [ft/ln]	218.24	21.47	286.21	13.67	22.27	22.24	5.04	290.92	107.24	171.10	2.42

Movement, Approach, & Intersection Results

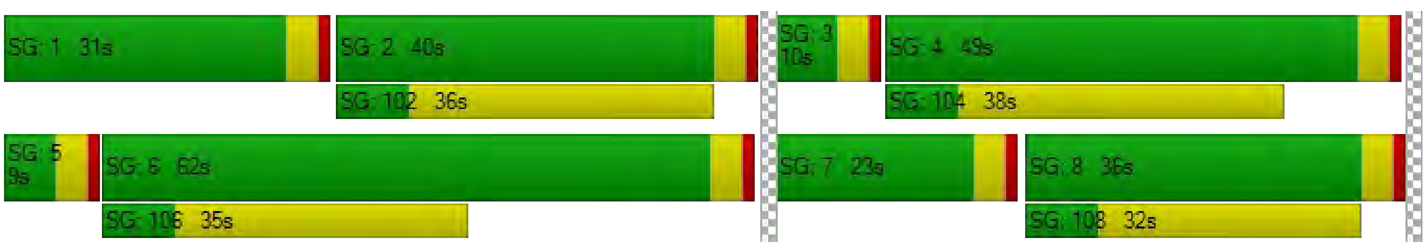
d_M, Delay for Movement [s/veh]	68.10	6.97	11.46	79.51	11.06	11.06	90.46	65.04	65.04	64.81	47.05	43.19
Movement LOS	E	A	B	E	B	B	F	E	E	E	D	D
d_A, Approach Delay [s/veh]	22.43			16.63			65.29			56.10		
Approach LOS	C			B			E			E		
d_I, Intersection Delay [s/veh]	36.21											
Intersection LOS	D											
Intersection V/C	0.551											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	54.47	54.47
I_p,int, Pedestrian LOS Score for Intersection	2.630	2.183	2.114	2.623
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	892	554	492	692
d_b, Bicycle Delay [s]	19.94	33.98	36.94	27.79
I_b,int, Bicycle LOS Score for Intersection	2.726	1.631	1.901	2.008
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	362	0	0	4	17	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	666	0	0	246	70	0	0	0	475	3	73
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	191	0	0	71	20	0	0	0	136	1	21
Total Analysis Volume [veh/h]	0	766	0	0	283	80	0	0	0	546	3	84
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	31	31	31		21	21
g / C, Green / Cycle	0.52	0.52	0.52		0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.22	0.07	0.07		0.31	0.05
s, saturation flow rate [veh/h]	3560	3560	1675		1781	1589
c, Capacity [veh/h]	1834	1834	863		627	559
d1, Uniform Delay [s]	9.01	7.58	7.62		18.25	13.33
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.70	0.15	0.34		4.08	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.42	0.13	0.14		0.88	0.15
d, Delay for Lane Group [s/veh]	9.71	7.73	7.96		22.33	13.46
Lane Group LOS	A	A	A		C	B
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	2.72	0.71	0.76		7.01	0.72
50th-Percentile Queue Length [ft/ln]	67.90	17.82	18.99		175.26	18.08
95th-Percentile Queue Length [veh/ln]	4.89	1.28	1.37		11.35	1.30
95th-Percentile Queue Length [ft/ln]	122.22	32.08	34.18		283.81	32.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	9.71	0.00	0.00	7.77	7.96	0.00	0.00	0.00	22.33	22.33	13.46
Movement LOS		A			A	A				C	C	B
d_A, Approach Delay [s/veh]	9.71			7.81			0.00			21.16		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	13.43											
Intersection LOS	B											
Intersection V/C	0.654											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.491	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	2.192	1.759	4.132	2.604
Bicycle LOS	B	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.025

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	102	0	1	4	0	260	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1015	837	55	674	0	319	1	745	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	282	233	15	187	0	89	0	207	0	0	0
Total Analysis Volume [veh/h]	0	1128	930	61	749	0	354	1	828	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	4	55	22	22	22	
g / C, Green / Cycle	0.55	0.55	0.05	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.59	0.03	0.15	0.20	0.26	0.26	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1972	880	82	3296	461	412	412	
d1, Uniform Delay [s]	12.40	18.98	40.07	6.21	29.15	31.52	31.52	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.26	0.26	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.21	46.40	12.30	0.16	3.26	33.55	33.66	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	1.06	0.74	0.23	0.77	1.01	1.01	
d, Delay for Lane Group [s/veh]	13.61	65.38	52.37	6.38	32.40	65.07	65.18	
Lane Group LOS	B	F	D	A	C	F	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.64	26.42	1.52	1.65	6.88	11.96	11.97	
50th-Percentile Queue Length [ft/ln]	165.99	660.41	38.07	41.13	171.92	299.07	299.28	
95th-Percentile Queue Length [veh/ln]	10.87	36.42	2.74	2.96	11.18	17.70	17.72	
95th-Percentile Queue Length [ft/ln]	271.63	910.42	68.52	74.04	279.44	442.56	442.91	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	13.61	65.38	52.37	6.38	0.00	32.40	65.07	65.12	0.00	0.00	0.00
Movement LOS		B	F	D	A		C	E	F			
d_A, Approach Delay [s/veh]		37.00			9.84			55.33			0.00	
Approach LOS		D			A			E			A	
d_I, Intersection Delay [s/veh]	36.92											
Intersection LOS	D											
Intersection V/C	1.025											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.249	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.692	2.005	3.512	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	167	982	30	169	708	212	422	221	112	49	155	207
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	78	0	0	3	1	24	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	177	1120	32	179	754	226	472	235	119	52	164	220
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	318	9	51	214	64	134	67	34	15	47	63
Total Analysis Volume [veh/h]	201	1273	36	203	857	257	536	267	135	59	186	250
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	16	43	0	38	56	0	13	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	58	58	10	58	58	23	41	41	4	23	23
g / C, Green / Cycle	0.07	0.45	0.45	0.07	0.45	0.45	0.18	0.32	0.32	0.03	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.25	0.02	0.06	0.17	0.16	0.15	0.07	0.08	0.02	0.05	0.16
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	258	2286	713	258	2286	713	612	1136	507	120	629	281
d1, Uniform Delay [s]	59.12	26.33	20.21	59.16	23.75	23.56	52.11	32.60	32.95	61.63	46.50	52.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.07	0.98	0.13	5.30	0.47	1.41	4.17	0.11	0.28	3.10	0.26	10.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.56	0.05	0.79	0.37	0.36	0.88	0.24	0.27	0.49	0.30	0.89
d, Delay for Lane Group [s/veh]	64.19	27.32	20.34	64.46	24.22	24.98	56.28	32.70	33.23	64.73	46.76	62.42
Lane Group LOS	E	C	C	E	C	C	E	C	C	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.44	9.83	0.65	3.48	5.94	5.50	8.87	3.15	3.24	1.01	2.66	8.76
50th-Percentile Queue Length [ft/ln]	86.02	245.76	16.33	87.09	148.55	137.38	221.68	78.72	81.02	25.29	66.44	218.90
95th-Percentile Queue Length [veh/ln]	6.19	14.97	1.18	6.27	9.94	9.34	13.75	5.67	5.83	1.82	4.78	13.61
95th-Percentile Queue Length [ft/ln]	154.84	374.32	29.39	156.76	248.49	233.49	343.76	141.69	145.84	45.53	119.59	340.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.19	27.32	20.34	64.46	24.22	24.98	56.28	32.70	33.23	64.73	46.76	62.42
Movement LOS	E	C	C	E	C	C	E	C	C	E	D	E
d_A, Approach Delay [s/veh]	32.06			30.57			46.25			56.81		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	37.60											
Intersection LOS	D											
Intersection V/C	0.708											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	3.146	3.234	2.833	2.752
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	600	800	415
d_b, Bicycle Delay [s]	30.47	31.85	23.40	40.80
I_b,int, Bicycle LOS Score for Intersection	2.390	2.284	2.333	1.968
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Cook Street and Frank Sinatra Drive

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	175.00	100.00	100.00	250.00	100.00	218.00	223.00	100.00	135.00	190.00	100.00	265.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Base Volume Input [veh/h]	123	803	83	69	630	201	253	265	193	42	155	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	0	0	2	1	15	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	912	88	73	671	214	283	281	205	45	164	92
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	262	25	21	193	61	81	81	59	13	47	26
Total Analysis Volume [veh/h]	151	1048	101	84	771	246	325	323	236	52	189	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	61	0	19	61	0	19	30	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	27	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	53	53	53	53	53	53	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	20	20	4	19	19	8	11	11	3	6	6
g / C, Green / Cycle	0.08	0.38	0.38	0.07	0.36	0.36	0.14	0.20	0.20	0.05	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.31	0.02	0.15	0.15	0.09	0.09	0.15	0.02	0.05	0.07
s, saturation flow rate [veh/h]	3459	1870	1813	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	292	702	681	233	1826	570	496	730	326	176	400	179
d1, Uniform Delay [s]	23.28	15.04	15.07	23.67	12.88	12.93	21.50	18.46	19.71	24.29	22.10	22.42
k, delay calibration	0.11	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.42	2.92	3.10	0.94	0.16	0.52	1.47	0.42	3.06	0.92	0.87	3.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.83	0.83	0.36	0.42	0.43	0.65	0.44	0.72	0.30	0.47	0.59
d, Delay for Lane Group [s/veh]	24.70	17.96	18.16	24.61	13.03	13.45	22.97	18.88	22.77	25.21	22.96	25.54
Lane Group LOS	C	B	B	C	B	B	C	B	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.89	5.91	5.79	0.50	2.01	1.99	1.84	1.61	2.72	0.32	1.06	1.31
50th-Percentile Queue Length [ft/ln]	22.34	147.66	144.66	12.42	50.34	49.79	46.12	40.22	68.01	7.88	26.60	32.77
95th-Percentile Queue Length [veh/ln]	1.61	9.89	9.73	0.89	3.62	3.59	3.32	2.90	4.90	0.57	1.91	2.36
95th-Percentile Queue Length [ft/ln]	40.20	247.30	243.28	22.36	90.61	89.63	83.01	72.39	122.41	14.18	47.87	58.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.70	18.05	18.16	24.61	13.03	13.45	22.97	18.88	22.77	25.21	22.96	25.54
Movement LOS	C	B	B	C	B	B	C	B	C	C	C	C
d_A, Approach Delay [s/veh]		18.83			14.01			21.42			24.09	
Approach LOS		B			B			C			C	
d_I, Intersection Delay [s/veh]	18.50											
Intersection LOS	B											
Intersection V/C	0.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	2.941	3.148	2.818	2.732
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	877	877	400	400
d_b, Bicycle Delay [s]	20.50	20.50	41.60	41.60
I_b,int, Bicycle LOS Score for Intersection	2.632	2.165	2.289	1.846
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 9: Cook Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	230.00	100.00	122.00	176.00	100.00	173.00	265.00	100.00	154.00	240.00	100.00	175.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	218	787	208	204	617	192	139	604	281	133	383	160
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	42	0	0	2	0	12	0	0	0	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	231	877	221	216	657	204	160	641	298	141	406	176
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	255	64	63	191	59	47	186	87	41	118	51
Total Analysis Volume [veh/h]	269	1020	257	251	764	237	186	745	347	164	472	205
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	13	39	0	11	42	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	30	0	0	27	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	46	46	9	46	46	7	27	27	7	27	27
g / C, Green / Cycle	0.09	0.44	0.44	0.09	0.44	0.44	0.07	0.25	0.25	0.07	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.16	0.07	0.21	0.15	0.05	0.21	0.22	0.05	0.13	0.13
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	299	1571	702	299	1571	702	233	905	404	228	899	402
d1, Uniform Delay [s]	47.57	22.99	19.57	47.30	20.88	19.28	48.31	36.98	37.41	48.14	33.85	33.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.17	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	2.09	1.48	6.28	1.08	1.30	6.15	1.96	8.03	4.22	0.48	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.65	0.37	0.84	0.49	0.34	0.80	0.82	0.86	0.72	0.52	0.51
d, Delay for Lane Group [s/veh]	57.24	25.08	21.04	53.59	21.96	20.58	54.45	38.94	45.44	52.35	34.32	34.71
Lane Group LOS	E	C	C	D	C	C	D	D	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.87	10.03	4.39	3.48	6.75	3.98	2.59	9.14	9.29	2.23	5.21	4.57
50th-Percentile Queue Length [ft/ln]	96.76	250.75	109.85	87.00	168.75	99.62	64.79	228.60	232.14	55.82	130.27	114.21
95th-Percentile Queue Length [veh/ln]	6.97	15.22	7.83	6.26	11.01	7.17	4.66	14.10	14.28	4.02	8.95	8.07
95th-Percentile Queue Length [ft/ln]	174.17	380.60	195.79	156.59	275.27	179.31	116.62	352.58	357.07	100.48	223.86	201.84

Movement, Approach, & Intersection Results

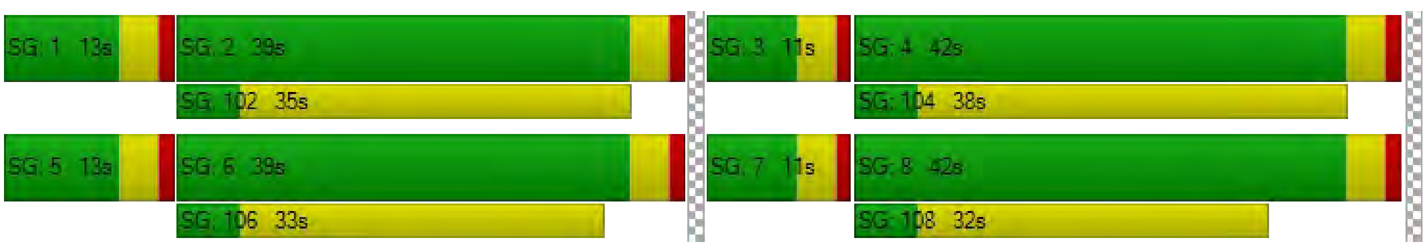
d_M, Delay for Movement [s/veh]	57.24	25.08	21.04	53.59	21.96	20.58	54.45	38.94	45.44	52.35	34.32	34.71
Movement LOS	E	C	C	D	C	C	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	30.00			28.04			42.96			37.94		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.23											
Intersection LOS	C											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
I_p,int, Pedestrian LOS Score for Intersection	3.078	2.974	2.917	2.895
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	724	724
d_b, Bicycle Delay [s]	23.33	23.33	21.38	21.38
I_b,int, Bicycle LOS Score for Intersection	2.835	2.593	2.614	2.253
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Varner Road and Classic Club Blvd

Control Type:	Signalized	Delay (sec / veh):	1.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.253

Intersection Setup

Name	Varner Road		Varner Road		Classic Club Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	218.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Varner Road		Varner Road		Classic Club Blvd	
Base Volume Input [veh/h]	544	5	4	238	4	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	415	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	600	5	4	668	4	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	1	1	196	1	1
Total Analysis Volume [veh/h]	706	6	5	786	5	5
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	45	0	10	55	45	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	29	0	0	10	36	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	86	86	1	91	1	1	1
g / C, Green / Cycle	0.86	0.86	0.01	0.91	0.01	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.20	0.00	0.00	0.22	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3560	1589	3459	3560	1781	1679	1589
c, Capacity [veh/h]	3063	1367	24	3230	23	21	20
d1, Uniform Delay [s]	1.22	0.98	49.37	0.55	48.83	48.84	48.84
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.01	4.06	0.18	2.96	3.35	3.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.00	0.20	0.24	0.15	0.16	0.16
d, Delay for Lane Group [s/veh]	1.39	0.99	53.43	0.73	51.79	52.19	52.61
Lane Group LOS	A	A	D	A	D	D	D
Critical Lane Group	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.51	0.01	0.08	0.08	0.10	0.10	0.10
50th-Percentile Queue Length [ft/ln]	12.68	0.20	1.89	2.01	2.52	2.55	2.57
95th-Percentile Queue Length [veh/ln]	0.91	0.01	0.14	0.14	0.18	0.18	0.19
95th-Percentile Queue Length [ft/ln]	22.82	0.37	3.40	3.62	4.54	4.58	4.63

Movement, Approach, & Intersection Results

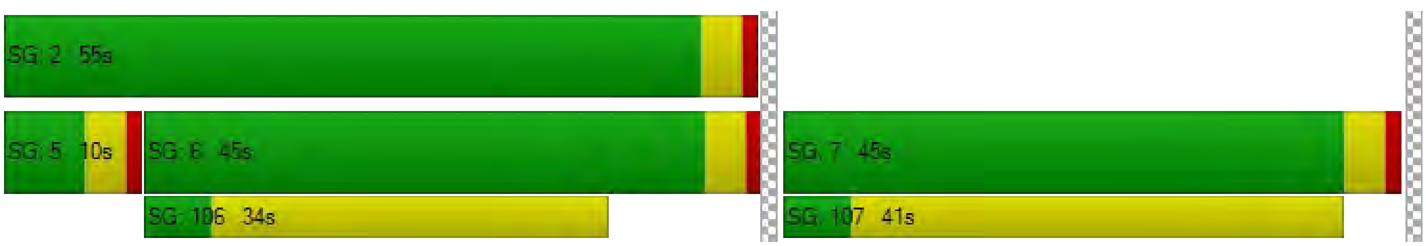
d_M, Delay for Movement [s/veh]	1.39	0.99	53.43	0.73	51.93	52.47
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	1.39		1.06		52.20	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.56					
Intersection LOS	A					
Intersection V/C	0.253					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.704	2.311
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	50.00	50.00	50.00
I_b,int, Bicycle LOS Score for Intersection	4.720	4.785	4.149
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Avenue 38 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.109

Intersection Setup

Name	Varner Road		Varner Road		Avenue 38	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Varner Road		Varner Road		Avenue 38	
Base Volume Input [veh/h]	486	1	16	212	0	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	178	0	0	9	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	694	1	17	234	0	35
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	204	0	5	69	0	10
Total Analysis Volume [veh/h]	816	1	20	275	0	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	9.55	0.00	22.58	15.72
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.00	0.36	0.36
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.89	0.00	9.08	9.08
d_A, Approach Delay [s/veh]	0.00		0.65		15.72	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.72					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	All-way stop	Delay (sec / veh):	50.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.040

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	9	0	0	178	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	88	41	24	17	294	23	394	558	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	11	7	5	82	6	109	155	11
Total Analysis Volume [veh/h]	0	0	0	98	46	27	19	327	26	438	620	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]		444	472	520	456	490	552	569
Degree of Utilization, x		0.22	0.10	0.05	0.04	0.72	1.04	0.97

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.84	0.32	0.16	0.13	5.78	15.78	13.35
95th-Percentile Queue Length [ft]		20.89	8.05	4.10	3.25	144.49	394.42	333.85
Approach Delay [s/veh]	0.00	12.10			25.95		65.38	
Approach LOS	A	B			D		F	
Intersection Delay [s/veh]	50.94							
Intersection LOS	F							

Intersection Level Of Service Report

Intersection 13: Washington Street and Avenue 38

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	Washington St		Washington St		Avenue 38	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Washington St		Washington St		Avenue 38	
Base Volume Input [veh/h]	24	354	162	5	11	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	376	172	5	12	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	111	51	1	4	2
Total Analysis Volume [veh/h]	29	442	202	6	14	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	7.70	0.00	0.00	0.00	14.43	9.33
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	0.11	0.03
95th-Percentile Queue Length [ft/ln]	1.63	0.00	0.00	0.00	2.74	0.72
d_A, Approach Delay [s/veh]	0.47		0.00		12.58	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	364	761	743	244	590	149	57	127	137	554	193	224
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	53	0	0	0	0	0	0	1	8	0	125	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	439	808	788	259	626	158	60	136	153	588	330	238
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	116	213	207	68	165	42	16	36	40	155	87	63
Total Analysis Volume [veh/h]	462	851	829	273	659	166	63	143	161	619	347	251
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	13	0	11	9	0	10	36	0	20	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	30	30	30	7	26	26	4	11	11	16	23	23	23
g / C, Green / Cycle	0.14	0.38	0.38	0.38	0.09	0.33	0.33	0.05	0.13	0.13	0.20	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.24	0.26	0.26	0.08	0.13	0.10	0.04	0.04	0.10	0.18	0.11	0.11	0.12
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1765	1589
c, Capacity [veh/h]	477	1350	603	603	306	1679	524	87	473	211	692	531	502	452
d1, Uniform Delay [s]	34.39	20.31	20.90	20.90	36.19	20.70	20.13	37.63	31.43	33.57	31.26	23.20	23.21	23.22
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.91	2.24	6.29	6.29	8.96	0.69	1.59	10.97	0.36	5.64	4.35	0.49	0.52	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	0.63	0.69	0.69	0.89	0.39	0.32	0.73	0.30	0.76	0.89	0.40	0.40	0.40
d, Delay for Lane Group [s/veh]	47.30	22.55	27.19	27.19	45.15	21.39	21.71	48.60	31.79	39.21	35.61	23.68	23.73	23.81
Lane Group LOS	D	C	C	C	D	C	C	D	C	D	D	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	5.20	6.52	7.17	7.17	2.96	3.14	2.46	1.46	1.25	3.27	6.04	3.21	3.05	2.77
50th-Percentile Queue Length [ft/ln]	130.0	162.9	179.2	179.2	74.02	78.47	61.44	36.48	31.18	81.85	151.0	80.28	76.18	69.25
95th-Percentile Queue Length [veh/ln]	8.94	10.70	11.56	11.56	5.33	5.65	4.42	2.63	2.25	5.89	10.07	5.78	5.48	4.99
95th-Percentile Queue Length [ft/ln]	223.5	267.6	288.9	288.9	133.24	141.24	110.59	65.67	56.13	147.34	251.8	144.5	137.1	124.6

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.30	22.55	27.19	45.15	21.39	21.71	48.60	31.79	39.21	35.61	23.70	23.79
Movement LOS	D	C	C	D	C	C	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	29.68			27.35			37.93			29.78		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	29.80											
Intersection LOS	C											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	0.00	31.51
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.088	0.000	3.112
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	225	125	800	1050
d_b, Bicycle Delay [s]	31.51	35.16	14.40	9.03
I_b,int, Bicycle LOS Score for Intersection	2.738	2.164	1.862	2.564
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	49.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.016

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	1584	469	239	1115	0	250	7	846	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	53	0	5	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1734	498	259	1186	0	265	7	898	0	0	0
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	476	137	71	326	0	73	2	247	0	0	0
Total Analysis Volume [veh/h]	0	1905	547	285	1303	0	291	8	987	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	74	83	0	0	47	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	62	62	13	79	43	43	43	
g / C, Green / Cycle	0.47	0.47	0.10	0.61	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.46	0.49	0.08	0.26	0.08	0.08	0.35	
s, saturation flow rate [veh/h]	3560	1672	3459	5094	1781	1785	2813	
c, Capacity [veh/h]	1691	795	354	3098	588	590	929	
d1, Uniform Delay [s]	33.09	34.09	57.04	13.40	31.80	31.79	43.49	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	15.25	39.48	4.35	0.42	0.23	0.22	34.10	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.97	1.03	0.81	0.42	0.25	0.25	1.06	
d, Delay for Lane Group [s/veh]	48.34	73.57	61.39	13.82	32.02	32.01	77.60	
Lane Group LOS	D	F	E	B	C	C	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	27.87	33.04	4.80	6.70	3.51	3.51	19.17	
50th-Percentile Queue Length [ft/ln]	696.74	826.01	119.94	167.44	87.75	87.72	479.14	
95th-Percentile Queue Length [veh/ln]	36.53	43.44	8.39	10.94	6.32	6.32	27.40	
95th-Percentile Queue Length [ft/ln]	913.19	1086.04	209.75	273.55	157.94	157.90	684.89	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	51.92	73.57	61.39	13.82	0.00	32.02	32.01	77.60	0.00	0.00	0.00
Movement LOS		D	E	E	B		C	C	F			
d_A, Approach Delay [s/veh]	56.75			22.36			67.00			0.00		
Approach LOS	E			C			E			A		
d_I, Intersection Delay [s/veh]	48.97											
Intersection LOS	D											
Intersection V/C	1.016											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	60.10
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.146
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	77	1215	662	0
d_b, Bicycle Delay [s]	60.10	10.00	29.11	65.00
I_b,int, Bicycle LOS Score for Intersection	2.908	2.433	3.682	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 16: Washington Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	55.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.824

Intersection Setup

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	0	1	0	1
Pocket Length [ft]	189.00	100.00	100.00	222.00	100.00	200.00	240.00	100.00	100.00	223.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	259	1277	37	285	1282	451	563	600	162	63	209	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	53	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	275	1408	39	302	1363	479	597	637	172	67	222	176
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	378	10	81	366	129	160	171	46	18	60	47
Total Analysis Volume [veh/h]	296	1514	42	325	1466	515	642	685	185	72	239	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	43	0	13	41	0	22	55	0	9	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	26	0	0	29	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	57	57	9	55	55	18	32	32	5	19	19
g / C, Green / Cycle	0.09	0.48	0.48	0.08	0.46	0.46	0.15	0.27	0.27	0.04	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.29	0.09	0.29	0.32	0.19	0.24	0.24	0.04	0.07	0.12
s, saturation flow rate [veh/h]	3459	3560	1844	3459	5094	1589	3459	1870	1736	1781	3560	1589
c, Capacity [veh/h]	319	1702	882	262	2351	734	520	506	470	76	579	259
d1, Uniform Delay [s]	54.10	22.96	22.97	55.49	24.44	25.75	51.01	41.96	42.25	57.36	45.11	47.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.56	1.59	3.04	116.17	1.26	5.55	109.52	6.69	8.87	37.40	0.47	3.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.60	0.60	1.24	0.62	0.70	1.23	0.88	0.90	0.95	0.41	0.73
d, Delay for Lane Group [s/veh]	65.66	24.55	26.01	171.66	25.70	31.31	160.52	48.65	51.12	94.76	45.58	51.72
Lane Group LOS	E	C	C	F	C	C	F	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.95	10.80	11.56	8.18	10.60	12.59	15.69	13.51	13.17	2.97	3.25	5.66
50th-Percentile Queue Length [ft/ln]	123.64	269.99	289.01	204.40	264.94	314.85	392.34	337.74	329.34	74.14	81.15	141.41
95th-Percentile Queue Length [veh/ln]	8.59	16.19	17.14	13.77	15.94	18.41	24.32	19.54	19.13	5.34	5.84	9.56
95th-Percentile Queue Length [ft/ln]	214.83	404.73	428.41	344.22	398.41	460.35	607.91	488.44	478.15	133.46	146.07	238.92

Movement, Approach, & Intersection Results

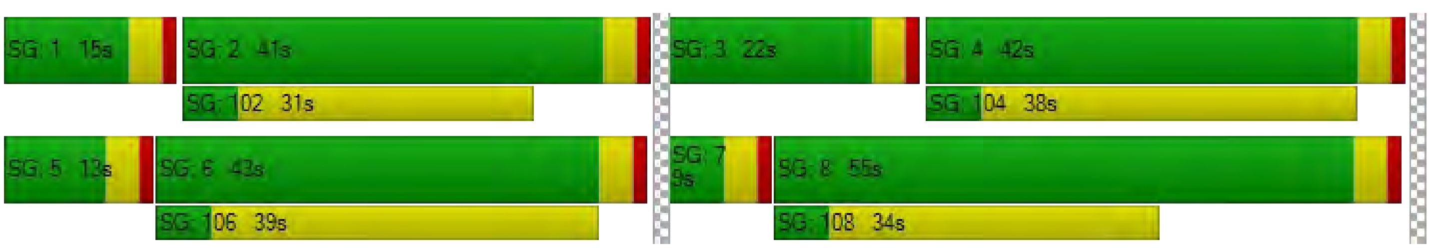
d_M, Delay for Movement [s/veh]	65.66	25.02	26.01	171.66	25.70	31.31	160.52	49.51	51.12	94.76	45.58	51.72
Movement LOS	E	C	C	F	C	C	F	D	D	F	D	D
d_A, Approach Delay [s/veh]	31.54			47.53			96.84			54.98		
Approach LOS	C			D			F			D		
d_I, Intersection Delay [s/veh]	55.42											
Intersection LOS	E											
Intersection V/C	0.824											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.176	3.368	2.884	2.720
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	617	850	633
d_b, Bicycle Delay [s]	27.34	28.70	19.84	28.02
I_b,int, Bicycle LOS Score for Intersection	2.578	2.828	2.807	1.972
Bicycle LOS	B	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.810

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	101	0	1	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	686	84	931	404	185	782
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	220	27	298	129	59	251
Total Analysis Volume [veh/h]	879	108	1194	518	237	1003
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	23	23	6	33
g / C, Green / Cycle	0.31	0.31	0.38	0.38	0.10	0.55
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.23	0.33	0.07	0.28
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1090	501	1934	604	366	1965
d1, Uniform Delay [s]	18.92	15.14	15.12	17.17	25.83	8.41
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.21	1.49	14.68	1.94	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.22	0.62	0.86	0.65	0.51
d, Delay for Lane Group [s/veh]	20.38	15.35	16.61	31.86	27.76	9.36
Lane Group LOS	C	B	B	C	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.27	1.02	4.14	8.18	1.63	3.46
50th-Percentile Queue Length [ft/ln]	131.63	25.54	103.42	204.56	40.80	86.49
95th-Percentile Queue Length [veh/ln]	9.03	1.84	7.45	12.87	2.94	6.23
95th-Percentile Queue Length [ft/ln]	225.71	45.97	186.15	321.84	73.44	155.69

Movement, Approach, & Intersection Results

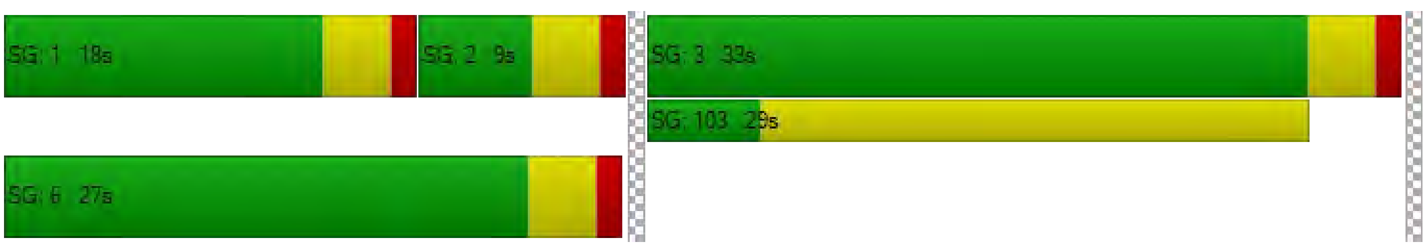
d_M, Delay for Movement [s/veh]	20.38	15.35	16.61	31.86	27.76	9.36
Movement LOS	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	19.83		21.22		12.88	
Approach LOS	B		C		B	
d_I, Intersection Delay [s/veh]	18.25					
Intersection LOS	B					
Intersection V/C	0.810					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.626	0.000	2.929
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.074	5.155
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix G

PM Peak Hour EAP Improvements Analysis

Intersections

LOS Analysis

Signal Warrant Analysis

LOS Analysis

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present					No			No			No	
Crosswalk		No			Yes			No			No	

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	9	0	0	178	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	88	41	24	17	294	23	394	558	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	11	7	5	82	6	109	155	11
Total Analysis Volume [veh/h]	0	0	0	98	46	27	19	327	26	438	620	46
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	0	0	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	9	0	0	24	0	0	27	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	20	0	0	0	0	0	0	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	L	C	C	C
C, Cycle Length [s]		60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	13	14	14	21	21
g / C, Green / Cycle		0.22	0.22	0.22	0.23	0.23	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate		0.06	0.02	0.02	0.01	0.19	0.32	0.32
s, saturation flow rate [veh/h]		1781	1870	1589	1781	1846	1801	1676
c, Capacity [veh/h]		389	409	347	406	420	638	594
d1, Uniform Delay [s]		19.44	18.84	18.69	18.14	22.18	18.37	18.37
k, delay calibration		0.50	0.50	0.50	0.11	0.11	0.18	0.18
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.55	0.56	0.44	0.05	4.56	7.69	8.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.25	0.11	0.08	0.05	0.84	0.90	0.90
d, Delay for Lane Group [s/veh]		20.99	19.40	19.13	18.18	26.75	26.07	26.53
Lane Group LOS		C	B	B	B	C	C	C
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		1.22	0.54	0.32	0.20	4.90	7.99	7.51
50th-Percentile Queue Length [ft/ln]		30.47	13.54	8.01	4.94	122.62	199.70	187.69
95th-Percentile Queue Length [veh/ln]		2.19	0.97	0.58	0.36	8.54	12.62	12.00
95th-Percentile Queue Length [ft/ln]		54.85	24.37	14.43	8.90	213.43	315.58	300.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	20.99	19.40	19.13	18.18	26.75	26.75	26.07	26.43	26.53
Movement LOS				C	B	B	B	C	C	C	C	C
d_A, Approach Delay [s/veh]	0.00			20.27			26.31			26.29		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	25.67											
Intersection LOS	C											
Intersection V/C	0.705											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	23.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	11.41	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.144	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	167	667	767
d_b, Bicycle Delay [s]	30.00	25.21	13.33	11.41
I_b,int, Bicycle LOS Score for Intersection	4.132	1.842	2.173	2.470
Bicycle LOS	D	A	B	B

Sequence

Ring 1	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Signal Warrant Analysis

Warrant 3: Peak Hour

12: EAP - Berkey Dr & Varner Road

Intersection Informatior

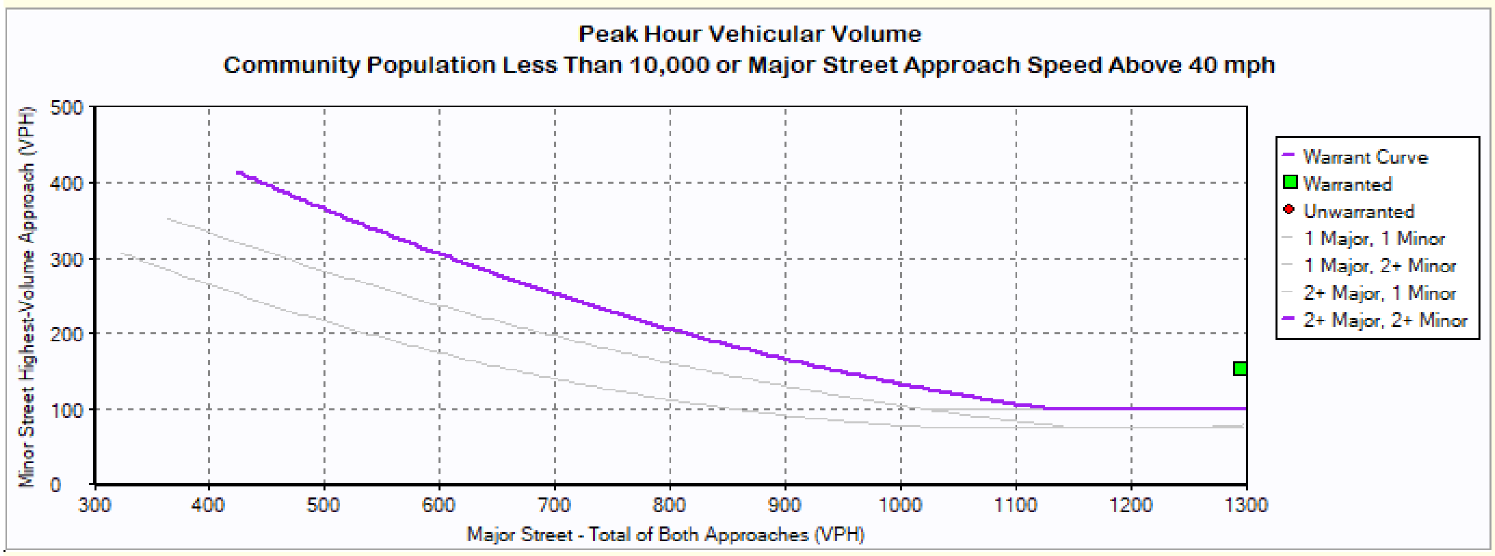
	Major Street	**Minor Street**
Street Name	Varner Rd	Berkey Dr
Direction	EB/WB	SB
Number of Lane:	2	3
Approch Speed	55	30

Warrant 3 Met? Yes

Details

Low Population?	No		
Condition A Met?	No	**Condition B Met?**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

12: EAP - Berkey Dr & Varner Road

Hour	**Major Street** Total All Approaches (vph)	**Minor Street** Highest Volume Approach (vph)
5:00	1,327	153

Appendix H

PM Peak Hour EAPC Conditions Analysis Worksheets

Intersections

Intersection Level Of Service Report
Intersection 1: Monterey Avenue and Varner Road

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.603

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	206.00	100.00	150.00	195.00	100.00	120.00	265.00	100.00	275.00	358.00	100.00	50.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Base Volume Input [veh/h]	216	428	74	22	379	11	28	72	207	465	192	153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	227	11	5	0	0	50	0	289	16	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	460	306	34	407	12	30	126	220	782	220	169
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	119	79	9	105	3	8	32	57	202	57	44
Total Analysis Volume [veh/h]	236	474	315	35	420	12	31	130	227	806	227	174
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	27	0	26	37	0	50	17	0	50	17	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	26	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	58	58	3	51	51	3	11	11	11	31	39	39
g / C, Green / Cycle	0.09	0.48	0.48	0.03	0.43	0.43	0.03	0.09	0.09	0.09	0.26	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.07	0.13	0.20	0.02	0.12	0.01	0.02	0.07	0.07	0.07	0.23	0.06	0.11
s, saturation flow rate [veh/h]	3459	3560	1589	1781	3560	1589	1781	1870	1595	1589	3459	3560	1589
c, Capacity [veh/h]	295	1713	765	53	1515	676	49	176	150	150	905	1168	522
d1, Uniform Delay [s]	53.90	18.64	20.15	57.66	22.46	19.96	57.75	52.85	53.06	53.07	42.67	28.94	30.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.99	0.40	1.64	13.40	0.46	0.05	12.33	5.51	7.79	7.84	3.28	0.08	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.28	0.41	0.66	0.28	0.02	0.63	0.72	0.76	0.76	0.89	0.19	0.33
d, Delay for Lane Group [s/veh]	58.90	19.04	21.79	71.06	22.92	20.01	70.08	58.36	60.85	60.91	45.96	29.02	30.80
Lane Group LOS	E	B	C	E	C	C	E	E	E	E	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.70	4.03	6.00	1.25	3.96	0.21	1.10	4.01	3.71	3.70	11.84	2.38	3.87
50th-Percentile Queue Length [ft/ln]	92.57	100.72	149.99	31.22	99.11	5.14	27.54	100.2	92.68	92.53	295.89	59.47	96.67
95th-Percentile Queue Length [veh/ln]	6.67	7.25	10.02	2.25	7.14	0.37	1.98	7.22	6.67	6.66	17.48	4.28	6.96
95th-Percentile Queue Length [ft/ln]	166.63	181.29	250.42	56.20	178.41	9.25	49.57	180.4	166.8	166.5	436.95	107.04	174.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.90	19.04	21.79	71.06	22.92	20.01	70.08	58.41	60.88	45.96	29.02	30.80
Movement LOS	E	B	C	E	C	C	E	E	E	D	C	C
d_A, Approach Delay [s/veh]	29.06			26.45			60.79			40.59		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	37.16											
Intersection LOS	D											
Intersection V/C	0.603											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	13.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	47.70	49.50	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.651	2.607	0.000
Crosswalk LOS	F	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	383	550	217	217
d_b, Bicycle Delay [s]	39.20	31.54	47.70	47.70
I_b,int, Bicycle LOS Score for Intersection	2.405	1.945	1.880	2.555
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Monterey Avenue and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.139

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Base Volume Input [veh/h]	0	1484	649	164	818	0	47	2	572	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	369	132	0	232	0	105	0	318	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1944	821	174	1100	0	155	2	925	0	0	0
Peak Hour Factor	1.0000	0.9900	0.9900	0.9900	0.9900	1.0000	0.9900	0.9900	0.9900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	491	207	44	278	0	39	1	234	0	0	0
Total Analysis Volume [veh/h]	0	1964	829	176	1111	0	157	2	934	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	41	56	0	0	20	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	66	66	66	66	66	66	66	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	32	32	6	42	16	16	16	
g / C, Green / Cycle	0.49	0.49	0.08	0.64	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.39	0.52	0.05	0.31	0.09	0.36	0.23	
s, saturation flow rate [veh/h]	5094	1589	3459	3560	1781	1590	1589	
c, Capacity [veh/h]	2501	780	294	2266	432	386	386	
d1, Uniform Delay [s]	13.95	16.83	29.18	6.36	20.80	25.04	24.60	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.30	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.56	50.07	1.96	0.76	0.51	224.66	11.66	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.79	1.06	0.60	0.49	0.36	1.48	0.94	
d, Delay for Lane Group [s/veh]	16.51	66.90	31.14	7.12	21.31	249.71	36.27	
Lane Group LOS	B	F	C	A	C	F	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	7.46	20.73	1.37	3.30	1.96	29.71	6.46	
50th-Percentile Queue Length [ft/ln]	186.52	518.32	34.28	82.50	48.96	742.66	161.43	
95th-Percentile Queue Length [veh/ln]	11.94	29.50	2.47	5.94	3.52	46.41	10.62	
95th-Percentile Queue Length [ft/ln]	298.50	737.47	61.70	148.50	88.12	1160.37	265.62	

Movement, Approach, & Intersection Results

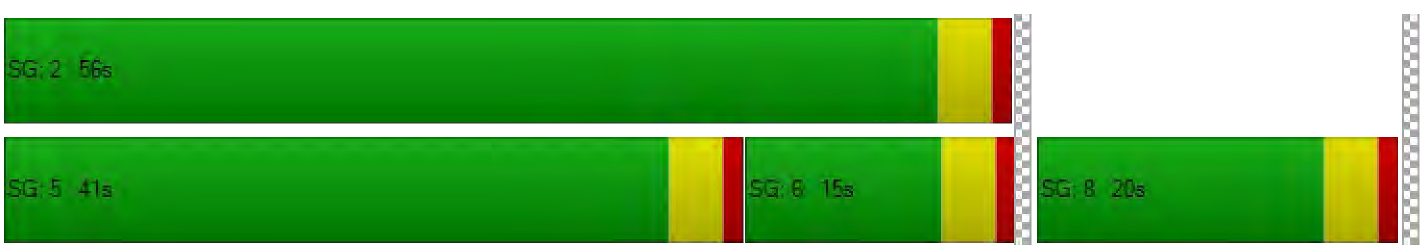
d_M, Delay for Movement [s/veh]	0.00	16.51	66.90	31.14	7.12	0.00	21.31	249.71	166.41	0.00	0.00	0.00
Movement LOS		B	F	C	A		C	F	F			
d_A, Approach Delay [s/veh]	31.47			10.41			145.75			0.00		
Approach LOS	C			B			F			A		
d_I, Intersection Delay [s/veh]	50.37											
Intersection LOS	D											
Intersection V/C	1.139											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	52.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	1.48	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.169	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1576	485	0
d_b, Bicycle Delay [s]	22.92	1.48	18.94	33.00
I_b,int, Bicycle LOS Score for Intersection	3.096	2.621	3.363	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	54.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.530

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	23	23	19	122	212	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	40	147	246	42	2	71
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	171	266	171	227	100
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	52	80	52	68	30
Total Analysis Volume [veh/h]	77	206	320	206	273	120
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.53	0.29	0.27	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	54.79	12.15	9.25	0.00	0.00	0.00
Movement LOS	F	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.60	1.21	1.12	1.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	64.88	30.15	28.09	28.09	0.00	0.00
d_A, Approach Delay [s/veh]	23.75		5.63		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.05					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	36.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	125	45	105	7	67	3	2	89	53	104	114	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	74	373	0	56	0	0	46	36	21	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	196	122	484	7	127	3	2	140	92	131	131	2
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	32	129	2	34	1	1	37	24	35	35	1
Total Analysis Volume [veh/h]	209	130	515	7	135	3	2	149	98	139	139	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	35	66	0	9	40	0	11	36	0	19	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	85	85	1	69	69	0	21	7	27	27
g / C, Green / Cycle	0.13	0.65	0.65	0.01	0.53	0.53	0.00	0.16	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.12	0.07	0.32	0.00	0.04	0.04	0.00	0.14	0.04	0.07	0.00
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1856	1781	1748	3459	1870	1589
c, Capacity [veh/h]	238	1221	1037	17	988	981	6	277	196	395	336
d1, Uniform Delay [s]	55.28	8.43	11.60	64.04	15.01	15.01	64.62	53.65	60.29	43.70	40.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.94	0.18	1.70	15.47	0.14	0.14	25.84	9.77	4.72	0.53	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.11	0.50	0.42	0.07	0.07	0.31	0.89	0.71	0.35	0.01
d, Delay for Lane Group [s/veh]	65.22	8.60	13.30	79.51	15.15	15.15	90.46	63.42	65.01	44.23	40.51
Lane Group LOS	E	A	B	E	B	B	F	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.38	1.41	7.83	0.30	1.05	1.05	0.11	8.67	2.39	3.90	0.05
50th-Percentile Queue Length [ft/ln]	184.60	35.13	195.66	7.59	26.27	26.23	2.80	216.66	59.68	97.56	1.30
95th-Percentile Queue Length [veh/ln]	11.84	2.53	12.41	0.55	1.89	1.89	0.20	13.49	4.30	7.02	0.09
95th-Percentile Queue Length [ft/ln]	296.01	63.23	310.36	13.67	47.29	47.21	5.04	337.36	107.42	175.61	2.34

Movement, Approach, & Intersection Results

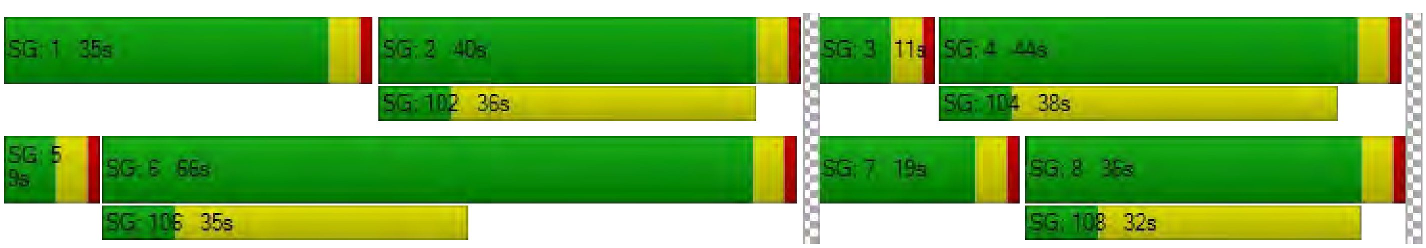
d_M, Delay for Movement [s/veh]	65.22	8.60	13.30	79.51	15.15	15.15	90.46	63.42	63.42	65.01	44.23	40.51
Movement LOS	E	A	B	E	B	B	F	E	E	E	D	D
d_A, Approach Delay [s/veh]	25.29			18.25			63.64			54.52		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	36.23											
Intersection LOS	D											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	54.47	54.47
I_p,int, Pedestrian LOS Score for Intersection	2.670	2.217	2.153	2.625
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	954	554	492	615
d_b, Bicycle Delay [s]	17.78	33.98	36.94	31.15
I_b,int, Bicycle LOS Score for Intersection	2.969	1.679	1.970	2.022
Bicycle LOS	C	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	424	0	0	96	17	0	0	0	152	0	86
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	728	0	0	338	70	0	0	0	627	3	148
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	209	0	0	97	20	0	0	0	180	1	43
Total Analysis Volume [veh/h]	0	837	0	0	389	80	0	0	0	721	3	170
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	25	25	25		27	27
g / C, Green / Cycle	0.41	0.41	0.41		0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.24	0.09	0.09		0.41	0.11
s, saturation flow rate [veh/h]	3560	3560	1715		1781	1589
c, Capacity [veh/h]	1474	1474	710		807	720
d1, Uniform Delay [s]	13.52	11.34	11.38		15.18	10.09
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.59	0.33	0.71		3.87	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.21	0.22		0.90	0.24
d, Delay for Lane Group [s/veh]	15.11	11.67	12.09		19.05	10.25
Lane Group LOS	B	B	B		B	B
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	4.10	1.25	1.33		8.50	1.22
50th-Percentile Queue Length [ft/ln]	102.49	31.24	33.19		212.50	30.61
95th-Percentile Queue Length [veh/ln]	7.38	2.25	2.39		13.28	2.20
95th-Percentile Queue Length [ft/ln]	184.49	56.23	59.73		332.03	55.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	15.11	0.00	0.00	11.75	12.09	0.00	0.00	0.00	19.05	19.05	10.25
Movement LOS		B			B	B				B	B	B
d_A, Approach Delay [s/veh]	15.11			11.81			0.00			17.38		
Approach LOS	B			B			A			B		
d_I, Intersection Delay [s/veh]	15.33											
Intersection LOS	B											
Intersection V/C	0.801											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.491	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	2.250	1.818	4.132	3.035
Bicycle LOS	B	A	D	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	71.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.215

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	297	107	45	204	0	260	0	174	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1210	944	99	874	0	319	1	919	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	336	262	28	243	0	89	0	255	0	0	0
Total Analysis Volume [veh/h]	0	1344	1049	110	971	0	354	1	1021	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	46	46	5	55	22	22	22	
g / C, Green / Cycle	0.54	0.54	0.06	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.38	0.66	0.06	0.19	0.20	0.32	0.32	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1919	857	109	3295	462	412	412	
d1, Uniform Delay [s]	14.54	19.63	39.97	6.56	29.16	31.54	31.54	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.39	0.39	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.16	111.51	43.19	0.23	3.25	123.35	123.51	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.70	1.22	1.01	0.29	0.77	1.24	1.24	
d, Delay for Lane Group [s/veh]	16.70	131.14	83.16	6.79	32.41	154.88	155.04	
Lane Group LOS	B	F	F	A	C	F	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.20	41.36	3.54	2.25	6.88	22.25	22.26	
50th-Percentile Queue Length [ft/ln]	229.88	1034.07	88.53	56.30	171.97	556.31	556.60	
95th-Percentile Queue Length [veh/ln]	14.17	60.17	6.37	4.05	11.18	33.66	33.68	
95th-Percentile Queue Length [ft/ln]	354.21	1504.16	159.35	101.35	279.51	841.51	842.01	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.70	131.14	83.16	6.79	0.00	32.41	154.88	154.96	0.00	0.00	0.00
Movement LOS		B	F	F	A		C	F	F			
d_A, Approach Delay [s/veh]	66.87			14.56			123.43			0.00		
Approach LOS	E			B			F			A		
d_I, Intersection Delay [s/veh]	71.26											
Intersection LOS	E											
Intersection V/C	1.215											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.312	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.876	2.154	3.830	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	56.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	167	982	30	169	708	212	422	221	112	49	155	207
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	259	242	0	4	179	195	155	76	180	0	93	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	436	1284	32	183	930	420	603	311	299	52	257	227
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	124	365	9	52	264	119	171	88	85	15	73	64
Total Analysis Volume [veh/h]	495	1459	36	208	1057	477	685	353	340	59	292	258
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	16	43	0	38	56	0	13	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	52	52	10	48	48	28	48	48	4	24	24
g / C, Green / Cycle	0.11	0.40	0.40	0.08	0.37	0.37	0.22	0.37	0.37	0.03	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.14	0.29	0.02	0.06	0.21	0.30	0.20	0.10	0.21	0.02	0.08	0.16
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	374	2037	636	263	1873	584	757	1305	582	120	648	289
d1, Uniform Delay [s]	57.98	32.81	23.95	59.07	32.80	37.14	49.45	28.97	33.20	61.63	47.38	51.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	149.64	2.19	0.17	5.34	1.24	11.95	4.40	0.11	0.93	3.10	0.49	15.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.32	0.72	0.06	0.79	0.56	0.82	0.90	0.27	0.58	0.49	0.45	0.89
d, Delay for Lane Group [s/veh]	207.62	35.00	24.12	64.41	34.04	49.09	53.85	29.08	34.13	64.73	47.87	67.13
Lane Group LOS	F	C	C	E	C	D	D	C	C	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	13.93	13.21	0.72	3.57	9.08	15.53	11.28	3.94	8.80	1.01	4.28	9.43
50th-Percentile Queue Length [ft/ln]	348.13	330.24	18.04	89.24	226.99	388.23	281.96	98.40	219.88	25.29	107.09	235.83
95th-Percentile Queue Length [veh/ln]	22.19	19.17	1.30	6.42	14.02	21.99	16.79	7.08	13.66	1.82	7.68	14.47
95th-Percentile Queue Length [ft/ln]	554.85	479.26	32.47	160.62	350.53	549.80	419.65	177.11	341.47	45.53	191.95	361.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	207.62	35.00	24.12	64.41	34.04	49.09	53.85	29.08	34.13	64.73	47.87	67.13
Movement LOS	F	C	C	E	C	D	D	C	C	E	D	E
d_A, Approach Delay [s/veh]	77.74			41.79			42.64			57.66		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	56.19											
Intersection LOS	E											
Intersection V/C	0.916											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	3.241	3.317	2.981	2.781
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	600	800	415
d_b, Bicycle Delay [s]	30.47	31.85	23.40	40.80
I_b,int, Bicycle LOS Score for Intersection	2.654	2.518	2.696	2.062
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Cook Street and Frank Sinatra Drive

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	175.00	100.00	100.00	250.00	100.00	218.00	223.00	100.00	135.00	190.00	100.00	265.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Base Volume Input [veh/h]	123	803	83	69	630	201	253	265	193	42	155	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	463	5	2	286	32	64	0	7	5	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	137	1315	93	75	955	245	332	281	212	50	164	96
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	378	27	22	274	70	95	81	61	14	47	28
Total Analysis Volume [veh/h]	157	1511	107	86	1098	282	382	323	244	57	189	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	61	0	19	61	0	19	30	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	27	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	67	67	67	67	67	67	67	67	67	67	67	67
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	30	30	4	29	29	10	14	14	3	7	7
g / C, Green / Cycle	0.08	0.45	0.45	0.06	0.43	0.43	0.15	0.21	0.21	0.05	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.05	0.43	0.44	0.02	0.22	0.18	0.11	0.09	0.15	0.02	0.05	0.07
s, saturation flow rate [veh/h]	3459	1870	1827	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	264	831	812	208	2181	681	526	744	332	171	378	169
d1, Uniform Delay [s]	30.16	18.40	18.63	30.57	14.06	13.41	27.27	23.22	24.95	31.00	28.46	28.96
k, delay calibration	0.11	0.43	0.45	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.14	24.00	28.00	1.32	0.18	0.40	1.93	0.40	3.16	1.13	1.02	4.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.98	0.99	0.41	0.50	0.41	0.73	0.43	0.73	0.33	0.50	0.65
d, Delay for Lane Group [s/veh]	32.29	42.40	46.63	31.89	14.24	13.81	29.20	23.62	28.11	32.13	29.48	33.14
Lane Group LOS	C	D	D	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	16.30	17.13	0.69	3.68	2.75	2.93	2.16	3.73	0.46	1.44	1.83
50th-Percentile Queue Length [ft/ln]	31.58	407.56	428.22	17.17	91.89	68.76	73.28	54.01	93.27	11.47	35.89	45.83
95th-Percentile Queue Length [veh/ln]	2.27	22.92	23.92	1.24	6.62	4.95	5.28	3.89	6.72	0.83	2.58	3.30
95th-Percentile Queue Length [ft/ln]	56.84	573.11	597.91	30.90	165.40	123.76	131.90	97.23	167.89	20.65	64.61	82.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.29	44.36	46.63	31.89	14.24	13.81	29.20	23.62	28.11	32.13	29.48	33.14
Movement LOS	C	D	D	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	43.43			15.20			27.02			31.04		
Approach LOS	D			B			C			C		
d_I, Intersection Delay [s/veh]	29.93											
Intersection LOS	C											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
I_p,int, Pedestrian LOS Score for Intersection	3.055	3.244	2.833	2.734
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	877	877	400	400
d_b, Bicycle Delay [s]	20.50	20.50	41.60	41.60
I_b,int, Bicycle LOS Score for Intersection	3.024	2.366	2.343	1.853
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 9: Cook Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	230.00	100.00	122.00	176.00	100.00	173.00	265.00	100.00	154.00	240.00	100.00	175.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	218	787	208	204	617	192	139	604	281	133	383	160
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	346	8	37	224	19	36	106	4	11	109	63
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	1181	229	253	879	223	184	747	302	152	515	233
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	343	67	74	256	65	53	217	88	44	150	68
Total Analysis Volume [veh/h]	272	1373	266	294	1022	259	214	869	351	177	599	271
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	39	0	13	39	0	11	42	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	30	0	0	27	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	43	43	9	43	43	7	29	29	7	29	29
g / C, Green / Cycle	0.09	0.41	0.41	0.09	0.41	0.41	0.07	0.28	0.28	0.07	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.08	0.39	0.17	0.09	0.29	0.16	0.06	0.24	0.22	0.05	0.17	0.17
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	301	1469	656	301	1469	656	236	997	445	236	997	445
d1, Uniform Delay [s]	47.60	29.56	21.81	47.93	25.47	21.69	48.70	36.08	35.00	48.15	32.79	32.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.18	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.83	12.35	1.86	19.06	2.75	1.78	12.40	2.53	5.03	4.75	0.58	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.93	0.41	0.98	0.70	0.39	0.91	0.87	0.79	0.75	0.60	0.61
d, Delay for Lane Group [s/veh]	57.43	41.91	23.67	66.99	28.22	23.47	61.10	38.61	40.03	52.90	33.37	34.22
Lane Group LOS	E	D	C	E	C	C	E	D	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.92	18.43	4.89	4.62	10.77	4.73	3.18	10.77	8.79	2.43	6.61	6.09
50th-Percentile Queue Length [ft/ln]	98.08	460.73	122.19	115.50	269.13	118.25	79.58	269.29	219.72	60.66	165.23	152.25
95th-Percentile Queue Length [veh/ln]	7.06	25.47	8.51	8.14	16.15	8.30	5.73	16.15	13.65	4.37	10.83	10.14
95th-Percentile Queue Length [ft/ln]	176.55	636.74	212.83	203.62	403.66	207.41	143.25	403.86	341.27	109.19	270.64	253.43

Movement, Approach, & Intersection Results

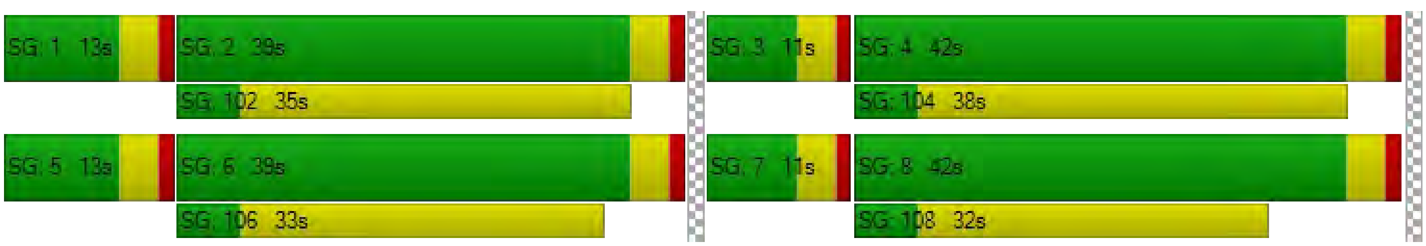
d_M, Delay for Movement [s/veh]	57.43	41.91	23.67	66.99	28.22	23.47	61.10	38.61	40.03	52.90	33.37	34.22
Movement LOS	E	D	C	E	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	41.58			34.67			42.31			36.89		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.11											
Intersection LOS	D											
Intersection V/C	0.903											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
I_p,int, Pedestrian LOS Score for Intersection	3.156	3.081	2.960	2.948
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	724	724
d_b, Bicycle Delay [s]	23.33	23.33	21.38	21.38
I_b,int, Bicycle LOS Score for Intersection	3.136	2.859	2.743	2.423
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Varner Road and Classic Club Blvd

Control Type:	Signalized	Delay (sec / veh):	1.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.255

Intersection Setup

Name	Varner Road		Varner Road		Classic Club Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	218.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Varner Road		Varner Road		Classic Club Blvd	
Base Volume Input [veh/h]	544	5	4	238	4	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	0	419	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	608	5	4	672	4	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	179	1	1	198	1	1
Total Analysis Volume [veh/h]	715	6	5	791	5	5
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	45	0	10	55	45	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	29	0	0	10	36	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	86	86	1	91	1	1	1
g / C, Green / Cycle	0.86	0.86	0.01	0.91	0.01	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.20	0.00	0.00	0.22	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3560	1589	3459	3560	1781	1679	1589
c, Capacity [veh/h]	3063	1367	24	3230	23	21	20
d1, Uniform Delay [s]	1.22	0.98	49.37	0.55	48.83	48.84	48.84
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.01	4.06	0.18	2.96	3.35	3.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.00	0.20	0.24	0.15	0.16	0.16
d, Delay for Lane Group [s/veh]	1.40	0.99	53.43	0.73	51.79	52.19	52.61
Lane Group LOS	A	A	D	A	D	D	D
Critical Lane Group	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.52	0.01	0.08	0.08	0.10	0.10	0.10
50th-Percentile Queue Length [ft/ln]	12.88	0.20	1.89	2.03	2.52	2.55	2.57
95th-Percentile Queue Length [veh/ln]	0.93	0.01	0.14	0.15	0.18	0.18	0.19
95th-Percentile Queue Length [ft/ln]	23.19	0.37	3.40	3.65	4.54	4.58	4.63

Movement, Approach, & Intersection Results

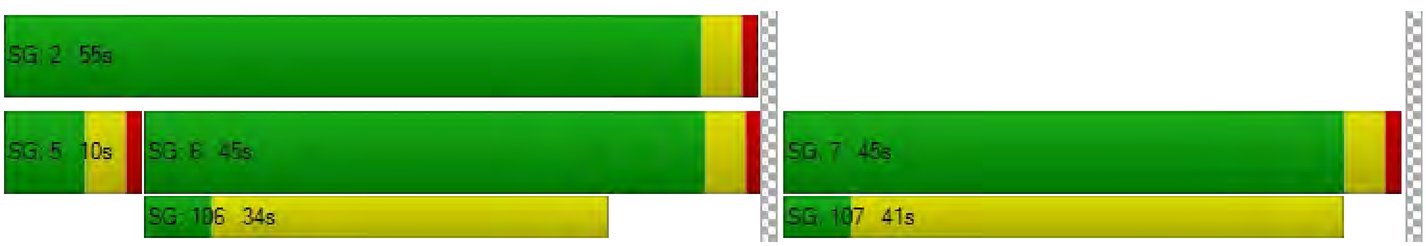
d_M, Delay for Movement [s/veh]	1.40	0.99	53.43	0.73	51.93	52.47
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	1.40		1.06		52.20	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.56					
Intersection LOS	A					
Intersection V/C	0.255					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.706	2.311
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	50.00	50.00	50.00
I_b,int, Bicycle LOS Score for Intersection	4.727	4.789	4.149
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Avenue 38 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.110

Intersection Setup

Name	Varner Road		Varner Road		Avenue 38	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Varner Road		Varner Road		Avenue 38	
Base Volume Input [veh/h]	486	1	16	212	0	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	186	0	0	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	702	1	17	238	0	35
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	206	0	5	70	0	10
Total Analysis Volume [veh/h]	826	1	20	280	0	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	9.59	0.00	22.96	15.88
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.00	0.37	0.37
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.91	0.00	9.22	9.22
d_A, Approach Delay [s/veh]	0.00		0.64		15.88	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.72					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	All-way stop	Delay (sec / veh):	52.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.047

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	13	0	0	186	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	88	41	24	17	298	23	394	566	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	11	7	5	83	6	109	157	11
Total Analysis Volume [veh/h]	0	0	0	98	46	27	19	331	26	438	629	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]		443	472	519	456	490	557	570
Degree of Utilization, x		0.22	0.10	0.05	0.04	0.73	1.05	0.98

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.84	0.32	0.16	0.13	5.94	16.09	13.64
95th-Percentile Queue Length [ft]		20.92	8.06	4.11	3.25	148.52	402.24	341.02
Approach Delay [s/veh]	0.00	12.11			26.53		67.12	
Approach LOS	A	B			D		F	
Intersection Delay [s/veh]	52.26							
Intersection LOS	F							

Intersection Level Of Service Report
Intersection 13: Washington Street and Avenue 38

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name	Washington St		Washington St		Avenue 38	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Washington St		Washington St		Avenue 38	
Base Volume Input [veh/h]	24	354	162	5	11	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	10	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	386	182	5	12	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	114	54	1	4	2
Total Analysis Volume [veh/h]	29	454	214	6	14	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	7.73	0.00	0.00	0.00	14.75	9.40
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	0.11	0.03
95th-Percentile Queue Length [ft/ln]	1.65	0.00	0.00	0.00	2.84	0.73
d_A, Approach Delay [s/veh]	0.46		0.00		12.81	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.70					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.780

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	364	761	743	244	590	149	57	127	137	554	193	224
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	57	10	6	0	10	0	0	3	10	2	129	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	443	818	794	259	636	158	60	138	155	590	334	238
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	117	215	209	68	167	42	16	36	41	155	88	63
Total Analysis Volume [veh/h]	466	861	836	273	669	166	63	145	163	621	352	251
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	14	0	11	9	0	9	35	0	20	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	30	30	30	7	25	25	4	11	11	16	23	23	23
g / C, Green / Cycle	0.15	0.38	0.38	0.38	0.09	0.32	0.32	0.05	0.13	0.13	0.20	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.13	0.24	0.26	0.26	0.08	0.13	0.10	0.04	0.04	0.10	0.18	0.11	0.12	0.12
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1768	1589
c, Capacity [veh/h]	520	1346	601	601	306	1609	502	87	477	213	692	534	505	454
d1, Uniform Delay [s]	33.45	20.46	21.05	21.05	36.19	21.61	20.96	37.63	31.36	33.52	31.28	23.14	23.15	23.17
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.71	2.34	6.54	6.54	8.96	0.79	1.76	10.97	0.36	5.65	4.47	0.49	0.52	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.64	0.70	0.70	0.89	0.42	0.33	0.73	0.30	0.77	0.90	0.40	0.40	0.41
d, Delay for Lane Group [s/veh]	39.16	22.81	27.59	27.59	45.15	22.40	22.72	48.60	31.71	39.17	35.75	23.62	23.67	23.75
Lane Group LOS	D	C	C	C	D	C	C	D	C	D	D	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	4.73	6.65	7.29	7.29	2.96	3.28	2.53	1.46	1.26	3.31	6.07	3.23	3.07	2.79
50th-Percentile Queue Length [ft/ln]	118.2	166.1	182.3	182.3	74.02	82.03	63.23	36.49	31.58	82.84	151.8	80.78	76.79	69.73
95th-Percentile Queue Length [veh/ln]	8.29	10.87	11.72	11.72	5.33	5.91	4.55	2.63	2.27	5.96	10.12	5.82	5.53	5.02
95th-Percentile Queue Length [ft/ln]	207.3	271.8	293.0	293.0	133.24	147.66	113.82	65.67	56.85	149.11	252.9	145.4	138.2	125.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.16	22.81	27.59	45.15	22.40	22.72	48.60	31.71	39.17	35.75	23.64	23.73
Movement LOS	D	C	C	D	C	C	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	28.18			28.05			37.86			29.80		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	29.30											
Intersection LOS	C											
Intersection V/C	0.780											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	10.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	0.00	30.63
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.090	0.000	3.112
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	250	125	775	1050
d_b, Bicycle Delay [s]	30.63	35.16	15.01	9.03
I_b,int, Bicycle LOS Score for Intersection	2.749	2.169	1.866	2.569
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	50.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.024

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	1584	469	239	1115	0	250	7	846	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	73	2	5	17	0	0	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1754	500	259	1200	0	265	7	905	0	0	0
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	482	137	71	330	0	73	2	249	0	0	0
Total Analysis Volume [veh/h]	0	1927	549	285	1319	0	291	8	995	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	74	83	0	0	47	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	62	62	13	79	43	43	43	
g / C, Green / Cycle	0.47	0.47	0.10	0.61	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.46	0.49	0.08	0.26	0.08	0.08	0.35	
s, saturation flow rate [veh/h]	3560	1674	3459	5094	1781	1785	2813	
c, Capacity [veh/h]	1691	795	354	3098	588	590	929	
d1, Uniform Delay [s]	33.37	34.09	57.04	13.46	31.80	31.79	43.49	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.12	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	16.87	42.21	4.35	0.43	0.23	0.22	37.60	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.98	1.04	0.81	0.43	0.25	0.25	1.07	
d, Delay for Lane Group [s/veh]	50.23	76.30	61.39	13.89	32.02	32.01	81.10	
Lane Group LOS	D	F	E	B	C	C	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	28.69	33.66	4.80	6.81	3.51	3.51	19.62	
50th-Percentile Queue Length [ft/ln]	717.33	841.60	119.94	170.23	87.75	87.72	490.44	
95th-Percentile Queue Length [veh/ln]	37.48	44.49	8.39	11.09	6.32	6.32	28.10	
95th-Percentile Queue Length [ft/ln]	936.95	1112.14	209.75	277.22	157.94	157.90	702.38	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	53.97	76.30	61.39	13.89	0.00	32.02	32.01	81.10	0.00	0.00	0.00
Movement LOS		D	E	E	B		C	C	F			
d_A, Approach Delay [s/veh]	58.92			22.33			69.76			0.00		
Approach LOS	E			C			E			A		
d_I, Intersection Delay [s/veh]	50.61											
Intersection LOS	D											
Intersection V/C	1.024											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	60.10
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.147
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	77	1215	662	0
d_b, Bicycle Delay [s]	60.10	10.00	29.11	65.00
I_b,int, Bicycle LOS Score for Intersection	2.921	2.442	3.695	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 16: Washington Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	56.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	0	1	0	1
Pocket Length [ft]	189.00	100.00	100.00	222.00	100.00	200.00	240.00	100.00	100.00	223.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	259	1277	37	285	1282	451	563	600	162	63	209	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	75	0	0	24	0	0	73	2	0	97	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	277	1430	39	302	1384	479	597	710	174	67	319	176
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	384	10	81	372	129	160	191	47	18	86	47
Total Analysis Volume [veh/h]	298	1538	42	325	1488	515	642	763	187	72	343	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	43	0	13	41	0	22	55	0	9	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	26	0	0	29	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	55	55	9	53	53	18	35	35	5	22	22
g / C, Green / Cycle	0.09	0.46	0.46	0.08	0.44	0.44	0.15	0.29	0.29	0.04	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.29	0.09	0.29	0.32	0.19	0.26	0.27	0.04	0.10	0.12
s, saturation flow rate [veh/h]	3459	3560	1845	3459	5094	1589	3459	1870	1746	1781	3560	1589
c, Capacity [veh/h]	319	1621	840	262	2235	697	520	548	512	76	660	295
d1, Uniform Delay [s]	54.13	25.16	25.17	55.49	26.71	27.97	51.01	40.48	40.87	57.36	44.08	45.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.18	0.19	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.24	1.96	3.76	116.17	1.59	6.88	109.52	7.76	10.59	37.40	0.64	2.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.64	0.64	1.24	0.67	0.74	1.23	0.88	0.91	0.95	0.52	0.64
d, Delay for Lane Group [s/veh]	66.37	27.12	28.93	171.66	28.30	34.86	160.52	48.24	51.46	94.76	44.71	47.53
Lane Group LOS	E	C	C	F	C	C	F	D	D	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.01	11.65	12.51	8.18	11.40	13.37	15.69	14.72	14.62	2.97	4.67	5.40
50th-Percentile Queue Length [ft/ln]	125.21	291.27	312.75	204.40	285.07	334.37	392.34	367.96	365.50	74.14	116.68	134.99
95th-Percentile Queue Length [veh/ln]	8.68	17.25	18.31	13.77	16.94	19.37	24.32	21.01	20.89	5.34	8.21	9.21
95th-Percentile Queue Length [ft/ln]	216.97	431.21	457.77	344.22	423.52	484.31	607.91	525.26	522.27	133.46	205.26	230.27

Movement, Approach, & Intersection Results

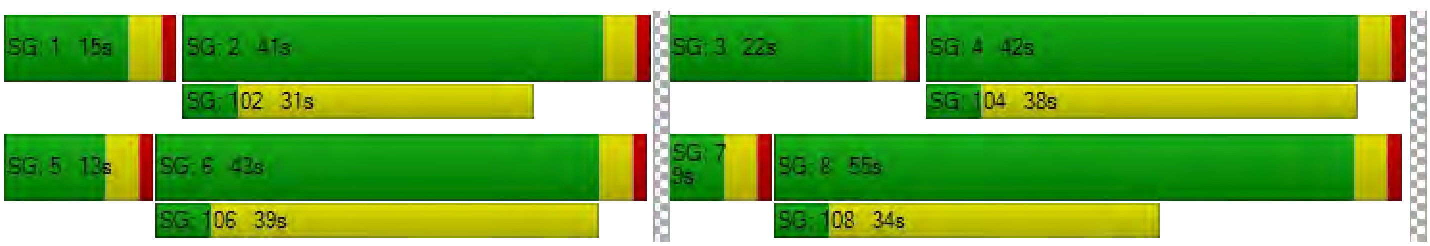
d_M, Delay for Movement [s/veh]	66.37	27.71	28.93	171.66	28.30	34.86	160.52	49.41	51.46	94.76	44.71	47.53
Movement LOS	E	C	C	F	C	C	F	D	D	F	D	D
d_A, Approach Delay [s/veh]	33.87			49.76			94.46			51.56		
Approach LOS	C			D			F			D		
d_I, Intersection Delay [s/veh]	56.39											
Intersection LOS	E											
Intersection V/C	0.827											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.182	3.373	2.915	2.750
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	617	850	633
d_b, Bicycle Delay [s]	27.34	28.70	19.84	28.02
I_b,int, Bicycle LOS Score for Intersection	2.593	2.840	2.873	2.058
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	103	0	3	6	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	688	84	933	410	185	786
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	221	27	299	131	59	252
Total Analysis Volume [veh/h]	882	108	1196	526	237	1008
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	23	23	6	33
g / C, Green / Cycle	0.32	0.32	0.38	0.38	0.10	0.55
(v / s)_i Volume / Saturation Flow Rate	0.26	0.07	0.23	0.33	0.07	0.28
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1093	502	1930	602	366	1962
d1, Uniform Delay [s]	18.89	15.10	15.17	17.35	25.83	8.46
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.21	1.51	16.10	1.94	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.22	0.62	0.87	0.65	0.51
d, Delay for Lane Group [s/veh]	20.35	15.31	16.68	33.45	27.76	9.42
Lane Group LOS	C	B	B	C	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.28	1.02	4.16	8.56	1.63	3.50
50th-Percentile Queue Length [ft/ln]	132.01	25.49	103.89	213.93	40.80	87.39
95th-Percentile Queue Length [veh/ln]	9.05	1.84	7.48	13.35	2.94	6.29
95th-Percentile Queue Length [ft/ln]	226.23	45.89	187.00	333.87	73.44	157.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.35	15.31	16.68	33.45	27.76	9.42
Movement LOS	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	19.80		21.80		12.92	
Approach LOS	B		C		B	
d_I, Intersection Delay [s/veh]	18.51					
Intersection LOS	B					
Intersection V/C	0.818					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.628	0.000	2.930
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.080	5.160
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix I

PM Peak Hour EAPC Improvements Analysis

Intersections

LOS Analysis

Signal Warrant Analysis

LOS Analysis

Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	23	23	19	122	212	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	40	147	246	42	2	71
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	171	266	171	227	100
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	52	80	52	68	30
Total Analysis Volume [veh/h]	77	206	320	206	273	120
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Split	Split	Split	Split
Signal group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	9	0	0	32	24	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	15	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C
C, Cycle Length [s]	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	21	21
g / C, Green / Cycle	0.17	0.17	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.04	0.13	0.29	0.22
s, saturation flow rate [veh/h]	1781	1589	1815	1774
c, Capacity [veh/h]	296	264	590	576
d1, Uniform Delay [s]	23.67	26.02	20.91	19.07
k, delay calibration	0.11	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	4.98	18.34	6.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.78	0.89	0.68
d, Delay for Lane Group [s/veh]	24.14	31.00	39.25	25.48
Lane Group LOS	C	C	D	C
Critical Lane Group	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.02	3.25	9.90	5.73
50th-Percentile Queue Length [ft/ln]	25.50	81.33	247.58	143.20
95th-Percentile Queue Length [veh/ln]	1.84	5.86	15.06	9.65
95th-Percentile Queue Length [ft/ln]	45.90	146.39	376.61	241.32

Movement, Approach, & Intersection Results

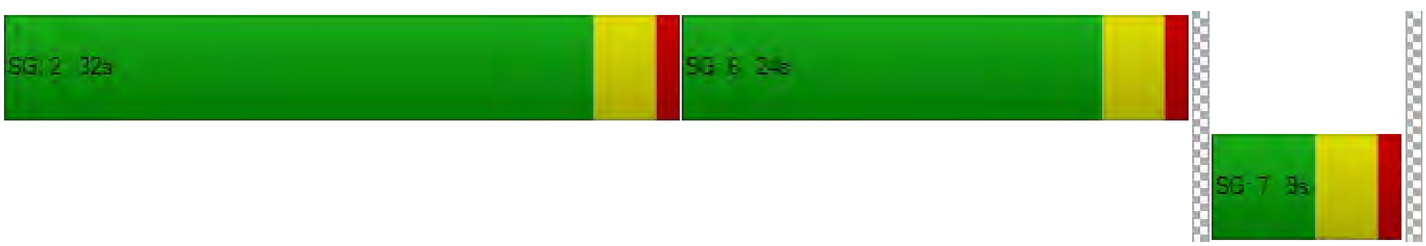
d_M, Delay for Movement [s/veh]	24.14	31.00	39.25	39.25	25.48	25.48
Movement LOS	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	29.13		39.25		25.48	
Approach LOS	C		D		C	
d_I, Intersection Delay [s/veh]	32.37					
Intersection LOS	C					
Intersection V/C	0.641					

Other Modes

g_Walk,mi, Effective Walk Time [s]	20.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.58	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.143	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	32.50	32.50	32.50
I_b,int, Bicycle LOS Score for Intersection	4.132	5.000	4.781
Bicycle LOS	D	F	E

Sequence

Ring 1	2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.930

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	297	107	45	204	0	260	0	174	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	-1021	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1210	944	99	874	0	319	1	0	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	336	262	28	243	0	89	0	0	0	0	0
Total Analysis Volume [veh/h]	0	1344	1049	110	971	0	354	1	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	78	0	11	89	0	16	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	24	0	0	0	0	0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No		No					
Maximum Recall		No		No	No		No					
Pedestrian Recall		No		No	No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R	
C, Cycle Length [s]	105	105	105	105	105	105	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	74	74	7	85	12	12	
g / C, Green / Cycle	0.70	0.70	0.07	0.81	0.11	0.11	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.66	0.06	0.19	0.10	0.00	
s, saturation flow rate [veh/h]	5094	1589	1781	5094	3459	1589	
c, Capacity [veh/h]	3586	1119	119	4122	396	182	
d1, Uniform Delay [s]	6.25	13.53	48.70	2.36	45.85	0.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.30	15.53	22.96	0.13	7.14	0.00	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.37	0.94	0.92	0.24	0.89	0.00	
d, Delay for Lane Group [s/veh]	6.55	29.06	71.65	2.50	52.98	0.00	
Lane Group LOS	A	C	E	A	D	A	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	3.59	22.53	3.61	1.12	4.92	0.00	
50th-Percentile Queue Length [ft/ln]	89.79	563.23	90.37	28.04	122.93	0.00	
95th-Percentile Queue Length [veh/ln]	6.46	30.31	6.51	2.02	8.55	0.00	
95th-Percentile Queue Length [ft/ln]	161.62	757.84	162.66	50.47	213.84	0.00	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.55	29.06	71.65	2.50	0.00	52.98	0.00	0.00	0.00	0.00	0.00
Movement LOS		A	C	E	A		D		A			
d_A, Approach Delay [s/veh]	16.42			9.53			52.98			0.00		
Approach LOS	B			A			D			A		
d_I, Intersection Delay [s/veh]	17.85											
Intersection LOS	B											
Intersection V/C	0.930											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	85.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	1.90	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.053	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1410	1619	0	0
d_b, Bicycle Delay [s]	4.58	1.90	52.50	52.50
I_b,int, Bicycle LOS Score for Intersection	2.876	2.154	4.132	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present					No			No			No	
Crosswalk		No			Yes			No			No	

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	83	39	23	16	269	22	371	358	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	13	0	0	186	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	88	41	24	17	298	23	394	566	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	11	7	5	83	6	109	157	11
Total Analysis Volume [veh/h]	0	0	0	98	46	27	19	331	26	438	629	46
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	0	0	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	9	0	0	23	0	0	28	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	20	0	0	0	0	0	0	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	L	C	C	C
C, Cycle Length [s]		60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	13	14	14	22	22
g / C, Green / Cycle		0.21	0.21	0.21	0.23	0.23	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate		0.06	0.02	0.02	0.01	0.19	0.32	0.32
s, saturation flow rate [veh/h]		1781	1870	1589	1781	1846	1802	1676
c, Capacity [veh/h]		376	395	335	409	424	648	603
d1, Uniform Delay [s]		19.82	19.20	19.05	18.05	22.13	18.13	18.12
k, delay calibration		0.50	0.50	0.50	0.11	0.11	0.19	0.19
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.68	0.60	0.47	0.05	4.59	7.31	7.76
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.26	0.12	0.08	0.05	0.84	0.89	0.89
d, Delay for Lane Group [s/veh]		21.50	19.80	19.52	18.09	26.73	25.44	25.89
Lane Group LOS		C	B	B	B	C	C	C
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		1.24	0.55	0.33	0.20	4.96	7.94	7.46
50th-Percentile Queue Length [ft/ln]		30.99	13.75	8.14	4.93	124.01	198.57	186.54
95th-Percentile Queue Length [veh/ln]		2.23	0.99	0.59	0.35	8.61	12.56	11.94
95th-Percentile Queue Length [ft/ln]		55.79	24.74	14.65	8.87	215.32	314.12	298.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	21.50	19.80	19.52	18.09	26.73	26.73	25.44	25.79	25.89
Movement LOS				C	B	B	B	C	C	C	C	C
d_A, Approach Delay [s/veh]	0.00			20.73			26.29			25.66		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	25.29											
Intersection LOS	C											
Intersection V/C	0.710											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	24.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	10.80	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.141	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	167	633	800
d_b, Bicycle Delay [s]	30.00	25.21	14.01	10.80
I_b,int, Bicycle LOS Score for Intersection	4.132	1.842	2.180	2.478
Bicycle LOS	D	A	B	B

Sequence

Ring 1	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Signal Warrant Analysis

Warrant 3: Peak Hour

3: EAPC - Jack Ivey Dr & Varner Rd

Intersection Informatior

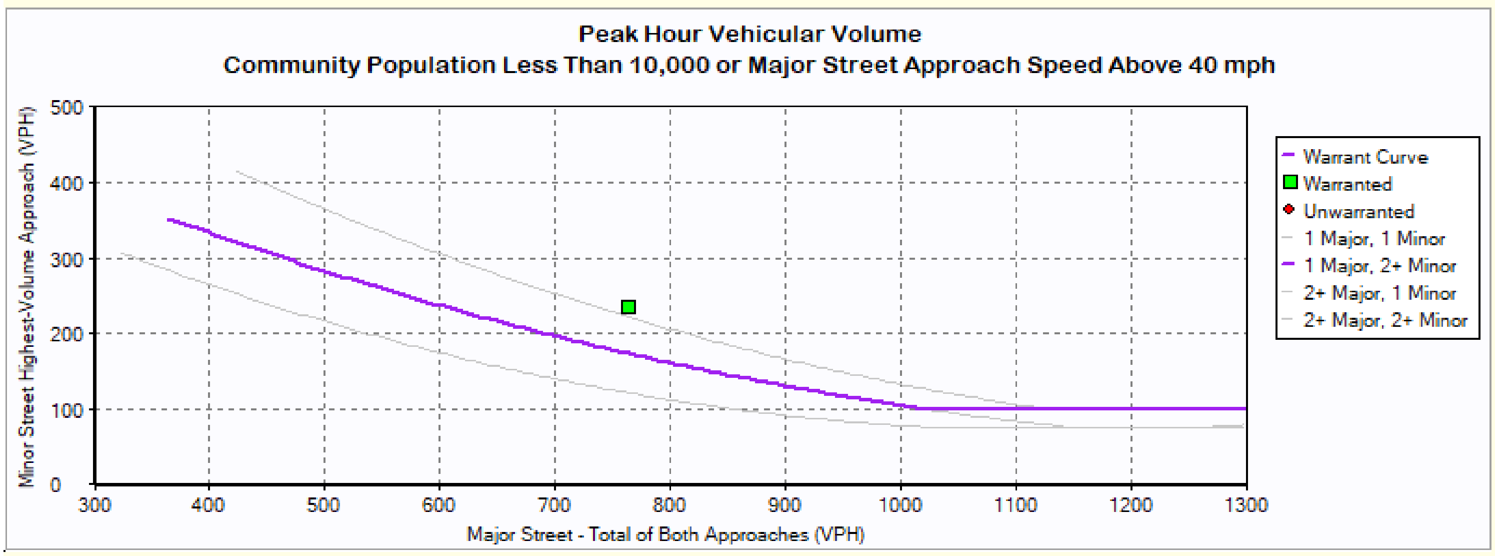
	Major Street	Minor Street
Street Name	Varner Rd	Jack Ivey Dr
Direction	EB/WB	SB
Number of Lane:	1	2
Approch Speed	55	30

Warrant 3 Met? Yes

Details

Low Population?	No		
Condition A Met?	No	**Condition B Met?**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

3: EAPC - Jack Ivey Dr & Varner Rd

Hour	**Major Street** Total All Approaches (vph)	**Minor Street** Highest Volume Approach (vph)
5:00	764	235

Appendix J
PM Peak Hour EAPC Driveway Analysis Worksheets

Intersection Level Of Service Report
Intersection 1: Driveway A1 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name	Driveway A1		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A1		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	49	627	613	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	49	627	613	22
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	13	170	167	6
Total Analysis Volume [veh/h]	0	0	53	682	666	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.10	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.21	11.36	11.87	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.15	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.28		0.86		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Driveway A2 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Driveway A2		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A2		Varner Road		Varner Road	
Base Volume Input [veh/h]	9	23	124	503	612	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	23	124	503	612	53
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	6	34	137	166	14
Total Analysis Volume [veh/h]	10	25	135	547	665	58
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.25	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	17.66	12.34	14.07	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.26	0.26	1.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.43	6.43	25.04	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.86		2.78		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.66					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 3: Driveway A3 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.303

Intersection Setup

Name	Driveway A3		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A3		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	138	374	665	59
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	138	374	665	59
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	38	102	181	16
Total Analysis Volume [veh/h]	0	0	150	407	723	64
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.30	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	17.86	11.96	15.39	0.00	0.00	0.00
Movement LOS	C	B	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.27	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	31.65	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.91		4.15		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.72					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Drivway A4 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.241

Intersection Setup

Name	Driveway A4		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A4		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	104	270	724	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	104	270	724	44
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	28	73	197	12
Total Analysis Volume [veh/h]	0	0	113	293	787	48
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.24	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	17.56	12.21	15.07	0.00	0.00	0.00
Movement LOS	C	B	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.93	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	23.27	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.88		4.19		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.37					
Intersection LOS	C					

Appendix K

Pre-Event Hour Concert Sellout EAPC Analysis

Intersections

Without TMP Measures

With TMP Measures

Without TMP Measures

Intersection Level Of Service Report
Intersection 1: Monterey Avenue and Varner Road

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.515

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	206.00	100.00	150.00	195.00	100.00	120.00	265.00	100.00	275.00	358.00	100.00	50.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Base Volume Input [veh/h]	190	407	34	22	381	11	39	34	117	322	151	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	234	8	5	0	0	78	0	235	14	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	202	437	270	31	409	12	41	114	124	577	174	193
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	121	75	9	114	3	11	32	34	160	48	54
Total Analysis Volume [veh/h]	224	486	300	34	454	13	46	127	138	641	193	214
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	54	0	10	37	0	14	9	0	47	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	26	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	66	66	3	60	60	4	9	9	9	25	30	30
g / C, Green / Cycle	0.08	0.55	0.55	0.03	0.50	0.50	0.03	0.07	0.07	0.07	0.21	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.14	0.19	0.02	0.13	0.01	0.03	0.05	0.05	0.05	0.19	0.05	0.13
s, saturation flow rate [veh/h]	3459	3560	1589	1781	3560	1589	1781	1870	1689	1589	3459	3560	1589
c, Capacity [veh/h]	293	1964	877	52	1767	789	61	138	124	117	734	896	400
d1, Uniform Delay [s]	53.78	13.97	14.87	57.68	17.46	15.36	57.49	54.19	54.33	54.40	45.74	35.54	38.84
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.16	0.30	1.06	13.10	0.35	0.04	17.21	5.58	7.05	8.11	3.46	0.12	1.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.25	0.34	0.65	0.26	0.02	0.76	0.67	0.70	0.72	0.87	0.22	0.53
d, Delay for Lane Group [s/veh]	57.93	14.27	15.93	70.78	17.82	15.40	74.70	59.77	61.38	62.52	49.20	35.66	39.95
Lane Group LOS	E	B	B	E	B	B	E	E	E	E	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.48	3.47	4.71	1.21	3.70	0.19	1.68	2.95	2.83	2.77	9.55	2.27	5.58
50th-Percentile Queue Length [ft/ln]	86.99	86.72	117.73	30.29	92.51	4.76	41.89	73.63	70.82	69.23	238.85	56.65	139.50
95th-Percentile Queue Length [veh/ln]	6.26	6.24	8.27	2.18	6.66	0.34	3.02	5.30	5.10	4.98	14.62	4.08	9.45
95th-Percentile Queue Length [ft/ln]	156.58	156.09	206.71	54.52	166.53	8.57	75.41	132.5	127.4	124.6	365.58	101.98	236.35

Movement, Approach, & Intersection Results

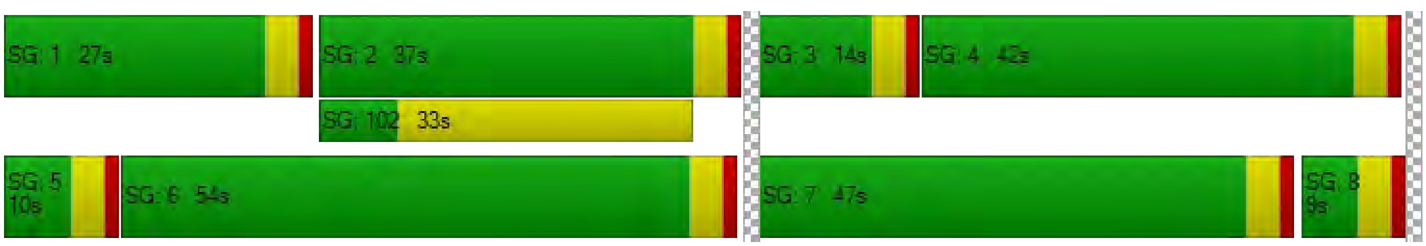
d_M, Delay for Movement [s/veh]	57.93	14.27	15.93	70.78	17.82	15.40	74.70	60.21	62.10	49.20	35.66	39.95
Movement LOS	E	B	B	E	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	24.45			21.35			63.18			44.82		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.54											
Intersection LOS	D											
Intersection V/C	0.515											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	38.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	28.02	49.50	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.646	2.587	0.000
Crosswalk LOS	F	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	550	83	633
d_b, Bicycle Delay [s]	20.42	31.54	55.10	28.02
I_b,int, Bicycle LOS Score for Intersection	2.393	1.973	1.816	2.424
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: Monterey Avenue and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.870

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Base Volume Input [veh/h]	0	1166	524	135	642	0	33	3	418	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	362	107	0	203	0	72	0	286	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1599	663	143	884	0	107	3	730	0	0	0
Peak Hour Factor	1.0000	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800	0.8800	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	454	188	41	251	0	30	1	207	0	0	0
Total Analysis Volume [veh/h]	0	1817	753	163	1005	0	122	3	830	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	75	84	0	0	36	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	18	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	68	68	8	80	32	32	32	
g / C, Green / Cycle	0.57	0.57	0.07	0.67	0.27	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.36	0.47	0.05	0.28	0.07	0.26	0.26	
s, saturation flow rate [veh/h]	5094	1589	3459	3560	1781	1591	1589	
c, Capacity [veh/h]	2886	900	231	2373	475	424	424	
d1, Uniform Delay [s]	17.52	21.41	54.81	9.29	34.62	43.68	43.69	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.44	0.44	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.05	9.09	3.94	0.56	0.28	36.65	36.92	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.63	0.84	0.71	0.42	0.26	0.98	0.98	
d, Delay for Lane Group [s/veh]	18.57	30.50	58.75	9.84	34.90	80.33	80.62	
Lane Group LOS	B	C	E	A	C	F	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.16	18.80	2.54	5.94	2.86	16.48	16.51	
50th-Percentile Queue Length [ft/ln]	278.99	470.11	63.50	148.54	71.50	412.02	412.78	
95th-Percentile Queue Length [veh/ln]	16.64	25.92	4.57	9.94	5.15	23.14	23.18	
95th-Percentile Queue Length [ft/ln]	415.95	647.91	114.30	248.48	128.70	578.46	579.38	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.57	30.50	58.75	9.84	0.00	34.90	80.33	80.47	0.00	0.00	0.00
Movement LOS		B	C	E	A		C	F	F			
d_A, Approach Delay [s/veh]	22.06			16.67			74.65			0.00		
Approach LOS	C			B			E			A		
d_I, Intersection Delay [s/veh]	31.42											
Intersection LOS	C											
Intersection V/C	0.870											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.34	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.266	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	83	1333	533	0
d_b, Bicycle Delay [s]	55.10	6.67	32.27	60.00
I_b,int, Bicycle LOS Score for Intersection	2.973	2.523	3.135	4.132
Bicycle LOS	C	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.240

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	10	23	12	71	148	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	32	96	170	150	8	51
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	120	183	225	165	66
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	37	56	69	51	20
Total Analysis Volume [veh/h]	53	148	226	278	204	81
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.19	0.18	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	26.39	10.57	8.42	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.91	0.68	0.64	0.64	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.72	17.03	16.05	16.05	0.00	0.00
d_A, Approach Delay [s/veh]	14.74		3.78		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.92					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	245.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.599

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	90	20	53	14	30	5	4	50	34	60	78	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	556	1535	0	48	0	37	117	28	113	14	200
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	577	1591	15	80	5	41	170	64	177	97	204
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	170	468	4	24	1	12	50	19	52	29	60
Total Analysis Volume [veh/h]	166	679	1872	18	94	6	48	200	75	208	114	240
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	38	68	0	10	40	0	10	36	0	16	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	80	80	2	68	68	5	22	10	27	27
g / C, Green / Cycle	0.11	0.61	0.61	0.02	0.52	0.52	0.04	0.17	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.09	0.36	1.18	0.01	0.03	0.03	0.03	0.15	0.06	0.06	0.15
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1831	1781	1784	3459	1870	1589
c, Capacity [veh/h]	195	1143	972	34	974	954	63	304	263	395	336
d1, Uniform Delay [s]	56.86	15.43	25.27	63.17	15.33	15.33	62.17	52.88	59.07	43.09	47.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.95	2.28	420.88	11.92	0.10	0.10	17.03	12.96	5.34	0.40	2.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.59	1.93	0.53	0.05	0.05	0.76	0.90	0.79	0.29	0.72
d, Delay for Lane Group [s/veh]	66.80	17.70	446.15	75.10	15.43	15.44	79.20	65.84	64.41	43.49	50.51
Lane Group LOS	E	B	F	E	B	B	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.90	12.59	141.41	0.71	0.77	0.77	1.87	9.90	3.57	3.15	7.50
50th-Percentile Queue Length [ft/ln]	147.48	314.76	3535.13	17.63	19.22	19.15	46.87	247.42	89.24	78.80	187.58
95th-Percentile Queue Length [veh/ln]	9.88	18.41	229.42	1.27	1.38	1.38	3.37	15.06	6.42	5.67	12.00
95th-Percentile Queue Length [ft/ln]	247.06	460.24	5735.54	31.74	34.60	34.47	84.37	376.40	160.62	141.84	299.88

Movement, Approach, & Intersection Results

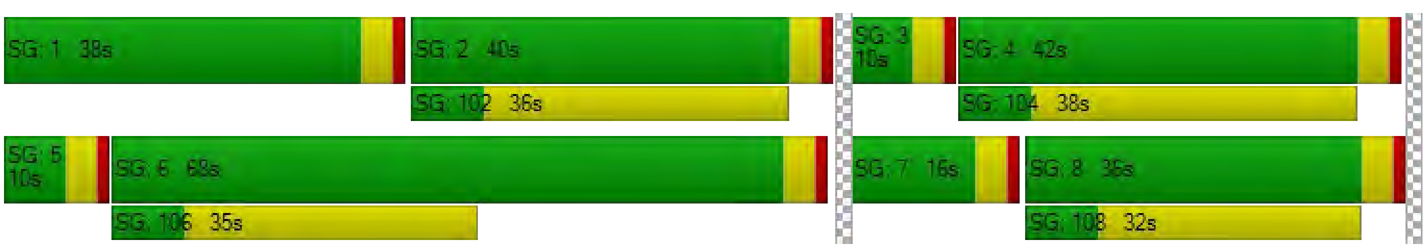
d_M, Delay for Movement [s/veh]	66.80	17.70	446.15	75.10	15.43	15.44	79.20	65.84	65.84	64.41	43.49	50.51
Movement LOS	E	B	F	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	315.90			24.53			67.82			54.23		
Approach LOS	F			C			E			D		
d_I, Intersection Delay [s/veh]	245.59											
Intersection LOS	F											
Intersection V/C	1.599											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	54.47	54.47	54.47	54.47
I_p,int, Pedestrian LOS Score for Intersection	2.973	2.413	2.156	2.901
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	985	554	492	585
d_b, Bicycle Delay [s]	16.75	33.98	36.94	32.55
I_b,int, Bicycle LOS Score for Intersection	6.043	1.657	2.093	2.487
Bicycle LOS	F	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	86.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.284

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	137	0	0	133	32	0	0	0	219	1	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2030	0	0	105	83	0	0	0	124	0	106
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2175	0	0	246	117	0	0	0	356	1	161
Peak Hour Factor	1.0000	0.7900	1.0000	1.0000	0.7900	0.7900	1.0000	1.0000	1.0000	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	688	0	0	78	37	0	0	0	113	0	51
Total Analysis Volume [veh/h]	0	2753	0	0	311	148	0	0	0	451	1	204
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	43	0	0	43	0	0	0	0	0	17	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	39	39	39		13	13
g / C, Green / Cycle	0.65	0.65	0.65		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.77	0.09	0.10		0.25	0.13
s, saturation flow rate [veh/h]	3560	3560	1597		1781	1589
c, Capacity [veh/h]	2308	2308	1035		389	348
d1, Uniform Delay [s]	10.57	4.07	4.11		23.46	21.03
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	91.41	0.12	0.30		78.89	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.19	0.13	0.15		1.16	0.59
d, Delay for Lane Group [s/veh]	101.98	4.19	4.41		102.36	22.61
Lane Group LOS	F	A	A		F	C
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	39.03	0.53	0.59		13.60	2.53
50th-Percentile Queue Length [ft/ln]	975.77	13.37	14.72		339.98	63.26
95th-Percentile Queue Length [veh/ln]	56.60	0.96	1.06		21.17	4.55
95th-Percentile Queue Length [ft/ln]	1414.93	24.07	26.49		529.33	113.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	101.98	0.00	0.00	4.19	4.41	0.00	0.00	0.00	102.36	102.36	22.61
Movement LOS		F			A	A				F	F	C
d_A, Approach Delay [s/veh]	101.98			4.26			0.00			77.56		
Approach LOS	F			A			A			E		
d_I, Intersection Delay [s/veh]	86.24											
Intersection LOS	F											
Intersection V/C	1.284											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.549	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1300	1300	0	433
d_b, Bicycle Delay [s]	3.68	3.68	30.00	18.41
I_b,int, Bicycle LOS Score for Intersection	3.831	1.812	4.132	2.642
Bicycle LOS	D	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	288.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.821

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	391	342	40	307	0	31	0	429	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	608	84	33	196	0	1530	0	146	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1023	447	75	522	0	1563	0	601	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	304	133	22	155	0	465	0	179	0	0	0
Total Analysis Volume [veh/h]	0	1218	532	89	621	0	1861	0	715	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	9	24	0	0	36	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	12	12	4	20	32	32	32	
g / C, Green / Cycle	0.20	0.20	0.07	0.33	0.53	0.53	0.53	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.36	0.05	0.12	1.04	0.22	0.22	
s, saturation flow rate [veh/h]	3560	1611	1781	5094	1781	1589	1589	
c, Capacity [veh/h]	720	326	118	1708	947	845	845	
d1, Uniform Delay [s]	24.00	24.00	27.59	15.14	14.09	8.51	8.51	
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	285.41	367.83	9.16	0.60	438.15	0.34	0.34	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.62	1.79	0.75	0.36	1.97	0.42	0.42	
d, Delay for Lane Group [s/veh]	309.41	391.83	36.75	15.74	452.23	8.85	8.85	
Lane Group LOS	F	F	D	B	F	A	A	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	33.25	37.55	1.49	2.03	125.20	2.35	2.35	
50th-Percentile Queue Length [ft/ln]	831.36	938.69	37.31	50.85	3130.08	58.68	58.68	
95th-Percentile Queue Length [veh/ln]	52.13	59.49	2.69	3.66	202.29	4.22	4.22	
95th-Percentile Queue Length [ft/ln]	1303.34	1487.16	67.15	91.54	5057.35	105.62	105.62	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	312.88	391.83	36.75	15.74	0.00	452.23	8.85	8.85	0.00	0.00	0.00
Movement LOS		F	F	D	B		F	A	A			
d_A, Approach Delay [s/veh]	336.88			18.37			329.16			0.00		
Approach LOS	F			B			F			A		
d_I, Intersection Delay [s/veh]	288.03											
Intersection LOS	F											
Intersection V/C	1.821											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.758	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	667	1067	0
d_b, Bicycle Delay [s]	20.01	13.33	6.53	30.00
I_b,int, Bicycle LOS Score for Intersection	2.522	1.950	5.810	4.132
Bicycle LOS	B	A	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	77.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.714

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	115	411	19	115	395	117	213	117	65	35	89	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	212	461	0	3	170	169	226	61	141	0	85	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	334	897	20	125	589	293	452	185	210	37	179	109
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	280	6	39	184	92	141	58	66	12	56	34
Total Analysis Volume [veh/h]	418	1121	25	156	736	366	565	231	263	46	224	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	42	0	10	35	0	13	21	0	27	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	55	55	6	48	48	9	19	19	4	14	14
g / C, Green / Cycle	0.13	0.55	0.55	0.06	0.48	0.48	0.09	0.19	0.19	0.04	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.12	0.22	0.02	0.05	0.14	0.23	0.16	0.06	0.17	0.01	0.06	0.09
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	451	2800	874	210	2446	763	314	685	306	129	495	221
d1, Uniform Delay [s]	43.06	13.02	10.31	46.25	15.82	17.58	45.53	34.92	39.13	47.04	39.62	40.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.60	0.43	0.06	5.07	0.32	2.15	363.34	0.29	7.02	1.67	0.65	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.40	0.03	0.74	0.30	0.48	1.80	0.34	0.86	0.36	0.45	0.62
d, Delay for Lane Group [s/veh]	51.66	13.44	10.37	51.32	16.14	19.74	408.87	35.21	46.15	48.71	40.26	43.37
Lane Group LOS	D	B	B	D	B	B	F	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.60	4.71	0.26	2.05	3.38	5.94	19.69	2.45	6.77	0.59	2.56	3.30
50th-Percentile Queue Length [ft/ln]	140.02	117.73	6.46	51.15	84.51	148.57	492.31	61.13	169.14	14.67	64.06	82.59
95th-Percentile Queue Length [veh/ln]	9.48	8.27	0.47	3.68	6.08	9.94	31.78	4.40	11.03	1.06	4.61	5.95
95th-Percentile Queue Length [ft/ln]	237.05	206.70	11.63	92.07	152.12	248.52	794.41	110.03	275.78	26.41	115.31	148.66

Movement, Approach, & Intersection Results

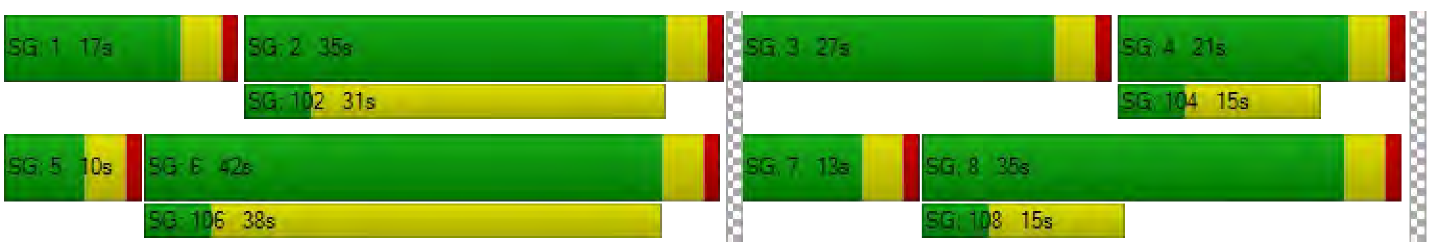
d_M, Delay for Movement [s/veh]	51.66	13.44	10.37	51.32	16.14	19.74	408.87	35.21	46.15	48.71	40.26	43.37
Movement LOS	D	B	B	D	B	B	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	23.61			21.55			237.28			42.26		
Approach LOS	C			C			F			D		
d_I, Intersection Delay [s/veh]	77.55											
Intersection LOS	E											
Intersection V/C	0.714											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	3.138	3.189	2.888	2.714
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	760	620	340	620
d_b, Bicycle Delay [s]	19.22	23.81	34.45	23.81
I_b,int, Bicycle LOS Score for Intersection	2.420	2.252	2.433	1.895
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Cook Street and Frank Sinatra Drive

Control Type:	Signalized	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.688

Intersection Setup

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	175.00	100.00	100.00	250.00	100.00	218.00	223.00	100.00	135.00	190.00	100.00	265.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Base Volume Input [veh/h]	73	407	35	54	397	146	97	125	83	29	78	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	598	4	3	250	26	81	0	7	5	0	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	1030	41	60	671	181	184	133	95	36	83	58
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	299	12	17	195	53	53	39	28	10	24	17
Total Analysis Volume [veh/h]	97	1198	48	70	780	210	214	155	110	42	97	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	43	0	9	41	0	15	23	0	25	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	27	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	48	48	48	48	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	20	20	3	19	19	5	7	7	2	4	4
g / C, Green / Cycle	0.08	0.41	0.41	0.06	0.39	0.39	0.11	0.15	0.15	0.04	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.34	0.02	0.15	0.13	0.06	0.04	0.07	0.01	0.03	0.04
s, saturation flow rate [veh/h]	3459	1870	1845	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	262	761	750	220	2010	627	370	548	245	156	329	147
d1, Uniform Delay [s]	21.28	12.82	12.83	21.67	10.48	10.23	20.59	18.12	18.62	22.35	20.51	20.83
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	2.44	2.51	0.82	0.12	0.31	1.44	0.28	1.29	0.91	0.49	2.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.82	0.83	0.32	0.39	0.33	0.58	0.28	0.45	0.27	0.30	0.46
d, Delay for Lane Group [s/veh]	22.14	15.26	15.34	22.49	10.60	10.54	22.02	18.40	19.91	23.26	21.00	23.04
Lane Group LOS	C	B	B	C	B	B	C	B	B	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.51	5.30	5.26	0.37	1.63	1.32	1.11	0.71	1.09	0.23	0.49	0.74
50th-Percentile Queue Length [ft/ln]	12.66	132.61	131.56	9.27	40.84	33.09	27.79	17.68	27.20	5.77	12.15	18.50
95th-Percentile Queue Length [veh/ln]	0.91	9.08	9.02	0.67	2.94	2.38	2.00	1.27	1.96	0.42	0.87	1.33
95th-Percentile Queue Length [ft/ln]	22.79	227.03	225.61	16.69	73.50	59.57	50.03	31.82	48.97	10.39	21.86	33.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.14	15.30	15.34	22.49	10.60	10.54	22.02	18.40	19.91	23.26	21.00	23.04
Movement LOS	C	B	B	C	B	B	C	B	B	C	C	C
d_A, Approach Delay [s/veh]	15.79			11.38			20.36			22.13		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	15.41											
Intersection LOS	B											
Intersection V/C	0.688											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.917	3.131	2.724	2.667
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	780	740	380	580
d_b, Bicycle Delay [s]	18.61	19.85	32.81	25.21
I_b,int, Bicycle LOS Score for Intersection	2.668	2.143	1.955	1.730
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 9: Cook Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.627

Intersection Setup

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	230.00	100.00	122.00	176.00	100.00	173.00	265.00	100.00	154.00	240.00	100.00	175.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	125	389	116	121	394	106	78	364	194	80	287	112
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	430	7	30	191	21	81	93	4	12	105	76
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	843	130	158	609	133	164	479	210	97	410	195
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	245	38	46	177	39	48	139	61	28	119	57
Total Analysis Volume [veh/h]	158	980	151	184	708	155	191	557	244	113	477	227
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	12	39	0	9	41	0	10	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	30	0	0	27	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	53	53	7	54	54	5	19	19	5	19	19
g / C, Green / Cycle	0.06	0.53	0.53	0.07	0.54	0.54	0.05	0.19	0.19	0.05	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.05	0.28	0.09	0.05	0.20	0.10	0.06	0.16	0.15	0.03	0.13	0.14
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	210	1871	835	253	1914	855	176	679	303	177	679	303
d1, Uniform Delay [s]	46.28	15.56	12.46	45.44	13.36	11.86	47.52	38.88	38.75	46.61	37.86	38.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.31	1.05	0.47	3.99	0.55	0.47	57.08	2.54	5.02	3.82	1.34	3.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.52	0.18	0.73	0.37	0.18	1.08	0.82	0.81	0.64	0.70	0.75
d, Delay for Lane Group [s/veh]	51.59	16.61	12.93	49.43	13.91	12.32	104.60	41.43	43.77	50.44	39.20	41.95
Lane Group LOS	D	B	B	D	B	B	F	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.08	7.22	1.82	2.36	4.54	1.82	3.58	6.72	6.08	1.47	5.53	5.51
50th-Percentile Queue Length [ft/ln]	51.97	180.45	45.60	59.12	113.39	45.42	89.41	167.96	151.98	36.67	138.25	137.69
95th-Percentile Queue Length [veh/ln]	3.74	11.62	3.28	4.26	8.03	3.27	6.44	10.97	10.12	2.64	9.39	9.36
95th-Percentile Queue Length [ft/ln]	93.54	290.61	82.08	106.42	200.71	81.75	160.94	274.24	253.07	66.01	234.66	233.92

Movement, Approach, & Intersection Results

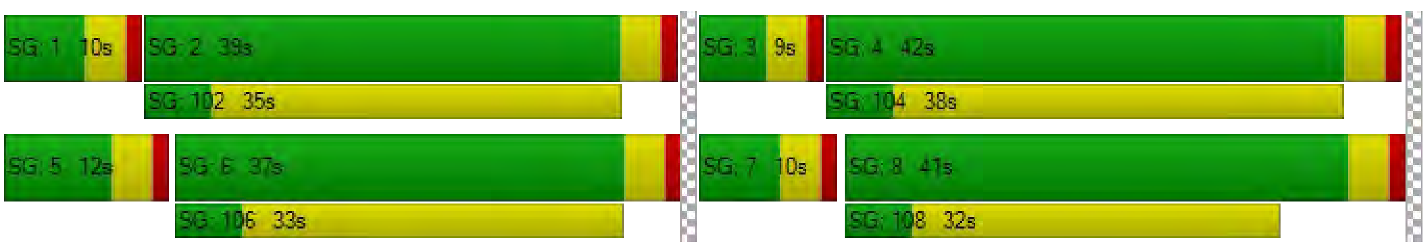
d_M, Delay for Movement [s/veh]	51.59	16.61	12.93	49.43	13.91	12.32	104.60	41.43	43.77	50.44	39.20	41.95
Movement LOS	D	B	B	D	B	B	F	D	D	D	D	D
d_A, Approach Delay [s/veh]		20.47			19.92			54.17			41.52	
Approach LOS		C			B			D			D	
d_I, Intersection Delay [s/veh]						32.54						
Intersection LOS						C						
Intersection V/C						0.627						

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	3.019	2.941	2.849	2.839
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	660	700	740	760
d_b, Bicycle Delay [s]	22.45	21.13	19.85	19.22
I_b,int, Bicycle LOS Score for Intersection	2.623	2.423	2.378	2.234
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Varner Road and Classic Club Blvd

Control Type:	Signalized	Delay (sec / veh):	2.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name	Varner Road		Varner Road		Classic Club Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	218.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Varner Road		Varner Road		Classic Club Blvd	
Base Volume Input [veh/h]	146	0	1	117	7	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	327	0	0	1652	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	482	0	1	1776	7	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	0	0	535	2	0
Total Analysis Volume [veh/h]	581	0	1	2140	8	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	40	0	10	50	45	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	29	0	0	10	36	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	82	82	0	86	1	1	1
g / C, Green / Cycle	0.86	0.86	0.00	0.91	0.01	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.16	0.00	0.00	0.60	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3560	1589	3459	3560	1781	1781	1589
c, Capacity [veh/h]	3066	1369	7	3223	19	19	17
d1, Uniform Delay [s]	1.10	0.00	47.33	1.07	46.61	46.61	0.00
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	0.00	9.42	1.10	5.43	5.43	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.00	0.15	0.66	0.21	0.21	0.00
d, Delay for Lane Group [s/veh]	1.23	0.00	56.75	2.17	52.04	52.04	0.00
Lane Group LOS	A	A	E	A	D	D	A
Critical Lane Group	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.32	0.00	0.02	0.49	0.12	0.12	0.00
50th-Percentile Queue Length [ft/ln]	8.11	0.00	0.52	12.26	3.04	3.04	0.00
95th-Percentile Queue Length [veh/ln]	0.58	0.00	0.04	0.88	0.22	0.22	0.00
95th-Percentile Queue Length [ft/ln]	14.59	0.00	0.93	22.07	5.48	5.48	0.00

Movement, Approach, & Intersection Results

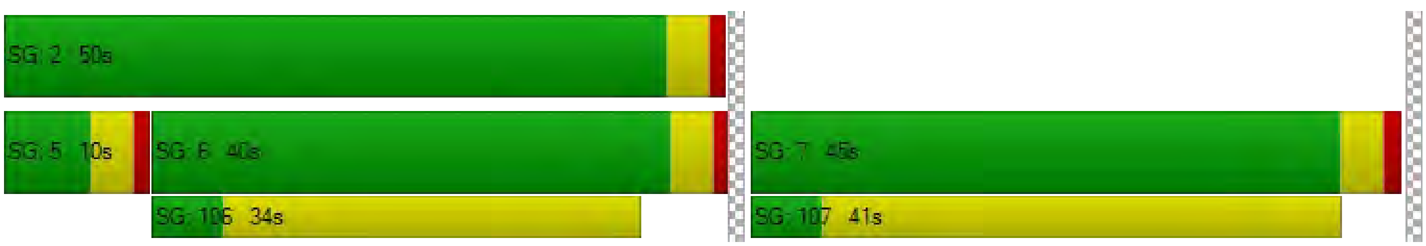
d_M, Delay for Movement [s/veh]	1.23	0.00	56.75	2.17	52.04	26.02
Movement LOS	A	A	E	A	D	C
d_A, Approach Delay [s/veh]	1.23		2.19		52.04	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	2.13					
Intersection LOS	A					
Intersection V/C	0.691					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	38.93	38.93
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.899	2.306
Crosswalk LOS	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	47.50	47.50	47.50
I_b,int, Bicycle LOS Score for Intersection	4.612	5.899	4.146
Bicycle LOS	E	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Avenue 38 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	Varner Road		Varner Road		Avenue 38	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Varner Road		Varner Road		Avenue 38	
Base Volume Input [veh/h]	136	0	15	101	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	822	0	0	49	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	966	0	16	156	0	5
Peak Hour Factor	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	335	0	6	54	0	2
Total Analysis Volume [veh/h]	1342	0	22	217	0	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.00	0.00	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	12.32	0.00	38.13	25.10
Movement LOS	A	A	B	A	E	D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.35	0.00	2.92	2.92
d_A, Approach Delay [s/veh]	0.00		1.13		25.10	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.28					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	All-way stop	Delay (sec / veh):	110.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.249

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	56	24	10	5	126	26	237	122	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	49	0	0	822	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	59	25	11	5	183	28	252	951	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	18	8	3	2	55	8	76	286	12
Total Analysis Volume [veh/h]	0	0	0	71	30	13	6	220	34	304	1146	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]		450	480	529	465	504	750	750
Degree of Utilization, x		0.16	0.06	0.02	0.01	0.50	1.25	1.20

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.56	0.20	0.08	0.04	2.80	28.53	26.17
95th-Percentile Queue Length [ft]		13.90	4.99	1.89	0.98	70.12	713.29	654.18
Approach Delay [s/veh]	0.00	11.52			16.77		134.70	
Approach LOS	A	B			C		F	
Intersection Delay [s/veh]	110.83							
Intersection LOS	F							

Intersection Level Of Service Report
Intersection 13: Washington Street and Avenue 38

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Washington St		Washington St		Avenue 38	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Washington St		Washington St		Avenue 38	
Base Volume Input [veh/h]	3	203	144	3	8	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	222	164	3	8	8
Peak Hour Factor	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	77	57	1	3	3
Total Analysis Volume [veh/h]	4	308	228	4	11	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	7.70	0.00	0.00	0.00	12.38	9.50
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	0.07	0.04
95th-Percentile Queue Length [ft/ln]	0.23	0.00	0.00	0.00	1.69	1.03
d_A, Approach Delay [s/veh]	0.10		0.00		10.94	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.48					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	73.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	246	360	569	157	286	51	21	86	94	464	116	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	243	8	5	0	11	0	0	7	42	3	579	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	504	390	609	167	315	54	22	98	142	495	702	127
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	142	110	171	47	88	15	6	28	40	139	197	36
Total Analysis Volume [veh/h]	566	438	684	188	354	61	25	110	160	556	789	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	11	0	9	9	0	9	26	0	29	46	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	29	29	29	5	27	27	2	10	10	15	23	23	23
g / C, Green / Cycle	0.09	0.39	0.39	0.39	0.07	0.36	0.36	0.03	0.13	0.13	0.20	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.16	0.12	0.22	0.22	0.05	0.07	0.04	0.01	0.03	0.10	0.16	0.17	0.25	0.09
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1870	1589
c, Capacity [veh/h]	324	1381	616	616	232	1840	574	50	471	210	690	569	569	483
d1, Uniform Delay [s]	34.04	16.05	17.94	17.94	34.56	16.47	15.94	35.99	29.17	31.44	28.67	21.99	24.23	19.99
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	338.0	0.60	3.58	3.58	6.57	0.23	0.37	7.58	0.25	5.57	2.27	0.89	3.00	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.74	0.32	0.55	0.55	0.81	0.19	0.11	0.50	0.23	0.76	0.81	0.57	0.82	0.30
d, Delay for Lane Group [s/veh]	372.0	16.66	21.52	21.52	41.13	16.71	16.31	43.57	29.42	37.01	30.94	22.88	27.24	20.33
Lane Group LOS	F	B	C	C	D	B	B	D	C	D	C	C	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	18.09	2.58	4.91	4.91	1.86	1.36	0.72	0.55	0.88	3.03	4.79	4.68	7.70	1.87
50th-Percentile Queue Length [ft/ln]	452.3	64.45	122.7	122.7	46.48	34.01	18.00	13.65	22.00	75.81	119.8	117.0	192.5	46.85
95th-Percentile Queue Length [veh/ln]	29.40	4.64	8.54	8.54	3.35	2.45	1.30	0.98	1.58	5.46	8.38	8.23	12.25	3.37
95th-Percentile Queue Length [ft/ln]	735.0	116.0	213.5	213.5	83.67	61.22	32.40	24.57	39.59	136.46	209.6	205.7	306.3	84.33

Movement, Approach, & Intersection Results

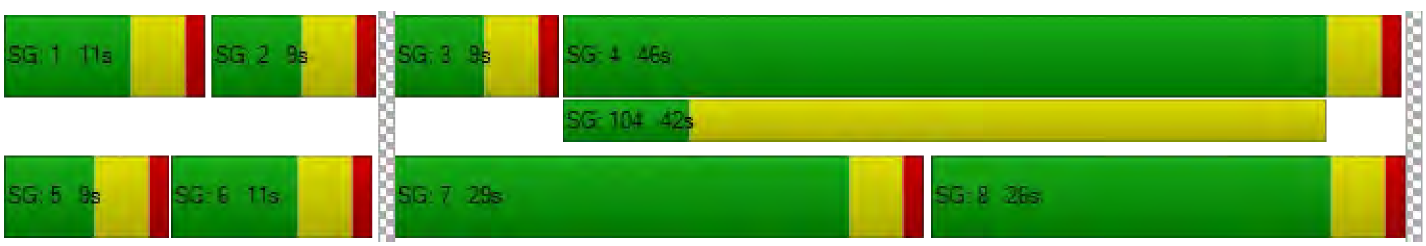
d_M, Delay for Movement [s/veh]	372.07	16.66	21.52	41.13	16.71	16.31	43.57	29.42	37.01	30.94	25.46	20.33
Movement LOS	F	B	C	D	B	B	D	C	D	C	C	C
d_A, Approach Delay [s/veh]	137.80			24.28			34.73			27.01		
Approach LOS	F			C			C			C		
d_I, Intersection Delay [s/veh]	73.07											
Intersection LOS	E											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	7.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	0.00	30.83
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.970	0.000	3.112
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	187	133	587	1120
d_b, Bicycle Delay [s]	30.83	32.67	18.73	7.26
I_b,int, Bicycle LOS Score for Intersection	2.488	1.891	1.803	2.787
Bicycle LOS	B	A	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	959	298	107	643	0	181	3	604	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	256	2	27	29	0	0	0	8	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1274	318	141	711	0	192	3	649	0	0	0
Peak Hour Factor	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	342	85	38	191	0	52	1	174	0	0	0
Total Analysis Volume [veh/h]	0	1370	342	152	765	0	206	3	698	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	22	0	50	72	0	0	48	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	13	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	67	67	8	79	33	33	33	
g / C, Green / Cycle	0.56	0.56	0.06	0.66	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.34	0.04	0.15	0.06	0.06	0.25	
s, saturation flow rate [veh/h]	3560	1691	3459	5094	1781	1783	2813	
c, Capacity [veh/h]	1998	949	219	3350	491	491	775	
d1, Uniform Delay [s]	17.00	17.43	55.04	8.27	33.43	33.43	41.85	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.19	2.82	3.95	0.16	0.21	0.21	4.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	0.60	0.70	0.23	0.21	0.21	0.90	
d, Delay for Lane Group [s/veh]	18.19	20.25	58.99	8.43	33.65	33.64	46.00	
Lane Group LOS	B	C	E	A	C	C	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.19	10.85	2.37	2.61	2.39	2.39	10.31	
50th-Percentile Queue Length [ft/ln]	254.74	271.31	59.32	65.20	59.70	59.71	257.75	
95th-Percentile Queue Length [veh/ln]	15.42	16.26	4.27	4.69	4.30	4.30	15.58	
95th-Percentile Queue Length [ft/ln]	385.62	406.38	106.77	117.36	107.45	107.48	389.40	

Movement, Approach, & Intersection Results

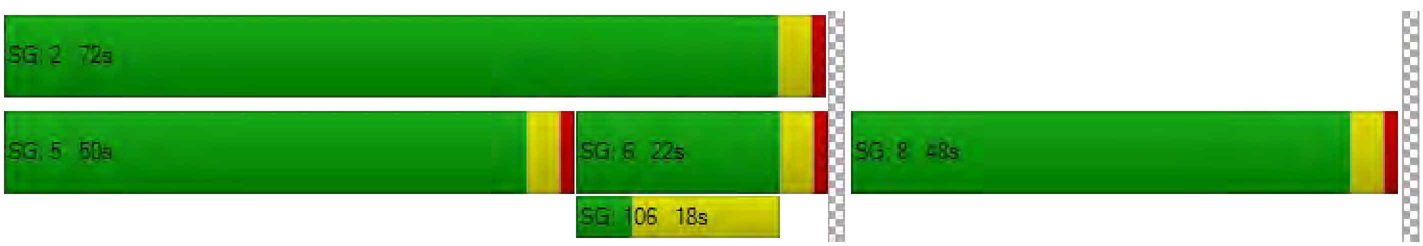
d_M, Delay for Movement [s/veh]	0.00	18.53	20.25	58.99	8.43	0.00	33.65	33.64	46.00	0.00	0.00	0.00
Movement LOS		B	C	E	A		C	C	D			
d_A, Approach Delay [s/veh]	18.87			16.81			43.15			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	24.57											
Intersection LOS	C											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.972
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	1133	733	0
d_b, Bicycle Delay [s]	43.35	11.27	24.07	60.00
I_b,int, Bicycle LOS Score for Intersection	2.501	2.064	3.056	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Washington Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	0	1	0	1
Pocket Length [ft]	189.00	100.00	100.00	222.00	100.00	200.00	240.00	100.00	100.00	223.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	227	821	52	201	900	277	410	314	110	43	144	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	258	0	0	37	0	0	58	3	0	83	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	1129	55	213	992	294	435	391	120	46	236	117
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	324	16	61	285	84	125	112	34	13	68	34
Total Analysis Volume [veh/h]	279	1298	63	245	1140	338	500	449	138	53	271	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	43	0	13	35	0	22	38	0	26	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	26	0	0	29	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	64	64	9	61	61	18	26	26	5	13	13
g / C, Green / Cycle	0.10	0.53	0.53	0.08	0.51	0.51	0.15	0.22	0.22	0.04	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.08	0.25	0.25	0.07	0.22	0.21	0.14	0.16	0.16	0.03	0.08	0.08
s, saturation flow rate [veh/h]	3459	3560	1826	3459	5094	1589	3459	1870	1721	1781	3560	1589
c, Capacity [veh/h]	344	1901	975	262	2599	811	520	407	375	70	380	170
d1, Uniform Delay [s]	52.96	17.45	17.45	55.20	18.56	18.30	50.67	43.92	43.93	57.08	51.83	52.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.61	0.85	1.65	14.53	0.54	1.58	11.34	2.81	3.06	14.90	2.48	7.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.47	0.47	0.94	0.44	0.42	0.96	0.75	0.75	0.75	0.71	0.79
d, Delay for Lane Group [s/veh]	57.56	18.29	19.10	69.73	19.10	19.87	62.01	46.72	46.98	71.98	54.32	60.21
Lane Group LOS	E	B	B	E	B	B	E	D	D	E	D	E
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.34	7.83	8.25	4.21	6.70	6.12	8.26	8.79	8.13	1.88	4.08	4.31
50th-Percentile Queue Length [ft/ln]	108.50	195.66	206.20	105.31	167.61	153.01	206.43	219.73	203.14	47.09	101.92	107.75
95th-Percentile Queue Length [veh/ln]	7.76	12.41	12.96	7.58	10.95	10.18	12.97	13.65	12.80	3.39	7.34	7.71
95th-Percentile Queue Length [ft/ln]	193.91	310.36	323.95	189.46	273.77	254.44	324.25	341.28	320.01	84.76	183.46	192.87

Movement, Approach, & Intersection Results

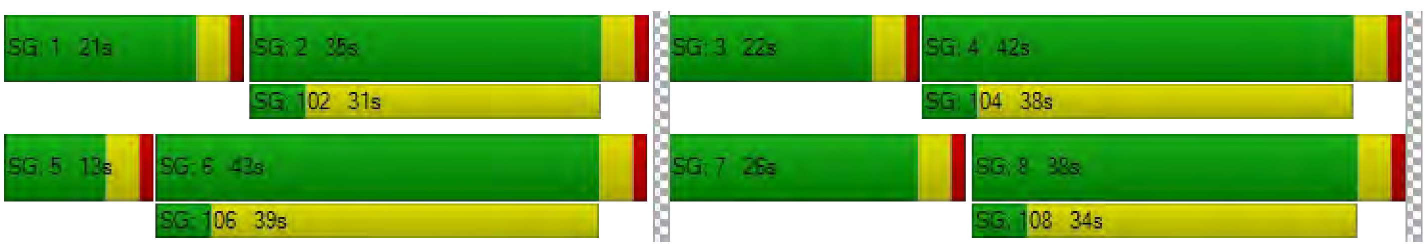
d_M, Delay for Movement [s/veh]	57.56	18.54	19.10	69.73	19.10	19.87	62.01	46.81	46.98	71.98	54.32	60.21
Movement LOS	E	B	B	E	B	B	E	D	D	E	D	E
d_A, Approach Delay [s/veh]	25.20			26.45			53.82			58.09		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	35.05											
Intersection LOS	D											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.103	3.260	2.789	2.666
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	517	567	633
d_b, Bicycle Delay [s]	27.34	33.00	30.82	28.02
I_b,int, Bicycle LOS Score for Intersection	2.462	2.507	2.456	1.937
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	269	60	586	253	118	461
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	489	0	7	5	0	93
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	774	64	629	273	125	582
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	228	19	185	80	37	171
Total Analysis Volume [veh/h]	911	75	740	321	147	685
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	34	0	26	34	10	36
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	5	5	0	5
Pedestrian Clearance [s]	24	0	17	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	31	31	5	40
g / C, Green / Cycle	0.31	0.31	0.45	0.45	0.07	0.57
(v / s)_i Volume / Saturation Flow Rate	0.26	0.05	0.15	0.20	0.04	0.19
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1082	497	2278	711	238	2040
d1, Uniform Delay [s]	22.48	17.38	12.53	13.42	31.76	7.91
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.87	0.14	0.38	2.07	2.61	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.15	0.32	0.45	0.62	0.34
d, Delay for Lane Group [s/veh]	24.34	17.51	12.91	15.49	34.36	8.36
Lane Group LOS	C	B	B	B	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	6.77	0.85	2.35	3.57	1.26	2.42
50th-Percentile Queue Length [ft/ln]	169.33	21.14	58.65	89.16	31.42	60.57
95th-Percentile Queue Length [veh/ln]	11.04	1.52	4.22	6.42	2.26	4.36
95th-Percentile Queue Length [ft/ln]	276.04	38.05	105.57	160.48	56.56	109.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.34	17.51	12.91	15.49	34.36	8.36
Movement LOS	C	B	B	B	C	A
d_A, Approach Delay [s/veh]	23.82		13.69		12.95	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.95					
Intersection LOS	B					
Intersection V/C	0.613					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	0.00	26.58
I_p,int, Pedestrian LOS Score for Intersection	2.572	0.000	2.812
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	35.00	35.00	35.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.716	4.819
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

With TMP Measures

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	58.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.027

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	90	20	53	14	30	5	4	50	34	60	78	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	556	1535	0	48	0	37	117	28	113	14	200
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	577	1591	15	80	5	41	170	64	177	97	204
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	170	468	4	24	1	12	50	19	52	29	60
Total Analysis Volume [veh/h]	166	679	1872	18	94	6	48	200	75	208	114	240
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	29	60	0	9	40	0	9	39	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	73	73	2	62	62	4	21	8	25	25
g / C, Green / Cycle	0.11	0.61	0.61	0.02	0.52	0.52	0.04	0.17	0.07	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.09	0.36	0.67	0.01	0.03	0.03	0.03	0.15	0.06	0.06	0.15
s, saturation flow rate [veh/h]	1781	1870	2813	1781	1870	1831	1781	1784	3459	1870	1589
c, Capacity [veh/h]	197	1136	1708	35	966	946	63	308	233	382	325
d1, Uniform Delay [s]	52.39	14.54	23.58	58.27	14.41	14.42	57.40	48.61	55.56	40.48	44.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.46	2.33	52.89	11.05	0.10	0.11	16.86	9.13	11.29	0.43	3.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.60	1.10	0.51	0.05	0.05	0.76	0.89	0.89	0.30	0.74
d, Delay for Lane Group [s/veh]	61.85	16.87	76.47	69.32	14.51	14.52	74.26	57.74	66.85	40.91	48.07
Lane Group LOS	E	B	F	E	B	B	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.42	11.59	34.69	0.65	0.71	0.71	1.74	8.81	3.49	2.92	6.98
50th-Percentile Queue Length [ft/ln]	135.50	289.69	867.37	16.25	17.69	17.63	43.52	220.37	87.21	72.92	174.57
95th-Percentile Queue Length [veh/ln]	9.24	17.17	47.82	1.17	1.27	1.27	3.13	13.68	6.28	5.25	11.32
95th-Percentile Queue Length [ft/ln]	230.95	429.26	1195.52	29.25	31.85	31.73	78.33	342.10	156.97	131.26	282.92

Movement, Approach, & Intersection Results

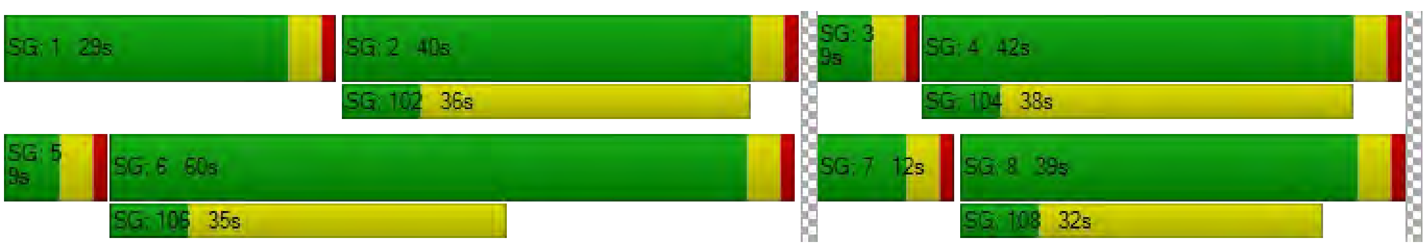
d_M, Delay for Movement [s/veh]	61.85	16.87	76.47	69.32	14.52	14.52	74.26	57.74	57.74	66.85	40.91	48.07
Movement LOS	E	B	F	E	B	B	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	60.68			22.88			60.19			53.57		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	58.37											
Intersection LOS	E											
Intersection V/C	1.027											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.039	2.409	2.152	2.898
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	600	583	633
d_b, Bicycle Delay [s]	17.07	29.40	30.10	28.02
I_b,int, Bicycle LOS Score for Intersection	6.043	1.657	2.093	2.487
Bicycle LOS	F	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	72.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.167

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	137	0	0	133	32	0	0	0	219	1	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2030	0	0	105	83	0	0	0	124	0	106
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2175	0	0	246	117	0	0	0	356	1	161
Peak Hour Factor	1.0000	0.7900	1.0000	1.0000	0.7900	0.7900	1.0000	1.0000	1.0000	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	688	0	0	78	37	0	0	0	113	0	51
Total Analysis Volume [veh/h]	0	2753	0	0	311	148	0	0	0	451	1	204
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	72	0	0	72	0	0	0	0	0	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	100	100	100		100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	68	68	68		24	24
g / C, Green / Cycle	0.68	0.68	0.68		0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.77	0.09	0.10		0.25	0.13
s, saturation flow rate [veh/h]	3560	3560	1597		1781	1589
c, Capacity [veh/h]	2419	2419	1085		428	382
d1, Uniform Delay [s]	16.00	5.61	5.67		37.93	33.06
k, delay calibration	0.50	0.50	0.50		0.34	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	67.68	0.11	0.27		51.31	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.14	0.13	0.14		1.06	0.53
d, Delay for Lane Group [s/veh]	83.68	5.72	5.94		89.25	34.22
Lane Group LOS	F	A	A		F	C
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	45.41	1.04	1.10		16.37	4.38
50th-Percentile Queue Length [ft/ln]	1135.28	26.04	27.46		409.13	109.61
95th-Percentile Queue Length [veh/ln]	62.97	1.87	1.98		23.73	7.82
95th-Percentile Queue Length [ft/ln]	1574.32	46.87	49.42		593.20	195.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	83.68	0.00	0.00	5.72	5.94	0.00	0.00	0.00	89.25	89.25	34.22
Movement LOS		F			A	A				F	F	C
d_A, Approach Delay [s/veh]	83.68			5.79			0.00			72.13		
Approach LOS	F			A			A			E		
d_I, Intersection Delay [s/veh]	72.48											
Intersection LOS	E											
Intersection V/C	1.167											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	41.41	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.575	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1360	1360	0	480
d_b, Bicycle Delay [s]	5.12	5.12	50.00	28.88
I_b,int, Bicycle LOS Score for Intersection	3.831	1.812	4.132	2.642
Bicycle LOS	D	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	60.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.061

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			No	

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	391	342	40	307	0	31	0	429	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	608	84	33	196	0	1530	0	146	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1023	447	75	522	0	1563	0	601	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	304	133	22	155	0	465	0	179	0	0	0
Total Analysis Volume [veh/h]	0	1218	532	89	621	0	1861	0	715	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	45	0	10	55	0	60	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	17	0	10	0	0	0	0	0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No		No					
Maximum Recall		No		No	No		No					
Pedestrian Recall		No		No	No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R	
C, Cycle Length [s]	115	115	115	115	115	115	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	41	41	6	51	56	56	
g / C, Green / Cycle	0.36	0.36	0.05	0.44	0.49	0.49	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.36	0.05	0.12	0.54	0.45	
s, saturation flow rate [veh/h]	3560	1611	1781	5094	3459	1589	
c, Capacity [veh/h]	1271	575	94	2266	1680	772	
d1, Uniform Delay [s]	35.35	36.96	54.25	20.18	29.56	27.64	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.41	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	11.97	41.23	30.85	0.30	51.38	16.30	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.92	1.01	0.94	0.27	1.11	0.93	
d, Delay for Lane Group [s/veh]	47.32	78.19	85.10	20.48	80.94	43.94	
Lane Group LOS	D	F	F	C	F	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	17.44	22.37	3.37	3.57	34.06	21.07	
50th-Percentile Queue Length [ft/ln]	435.88	559.36	84.34	89.20	851.60	526.71	
95th-Percentile Queue Length [veh/ln]	24.28	30.44	6.07	6.42	47.16	28.60	
95th-Percentile Queue Length [ft/ln]	607.08	761.02	151.80	160.57	1178.99	714.90	

Movement, Approach, & Intersection Results

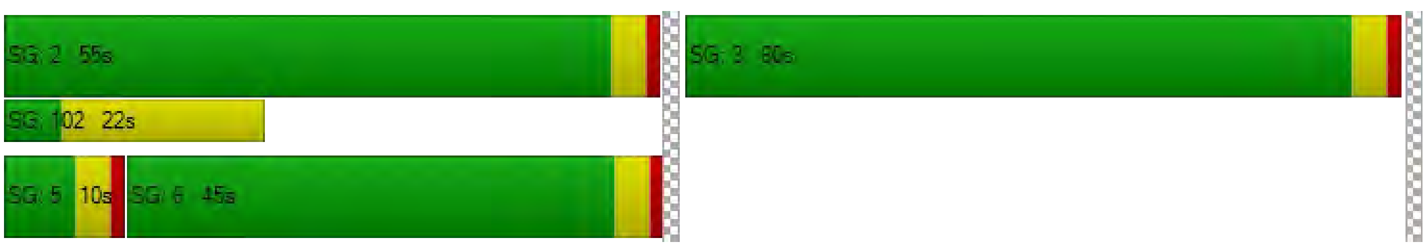
d_M, Delay for Movement [s/veh]	0.00	48.62	78.19	85.10	20.48	0.00	80.94	0.00	43.94	0.00	0.00	0.00
Movement LOS		D	E	F	C		F		D			
d_A, Approach Delay [s/veh]	57.61			28.58			70.67			0.00		
Approach LOS	E			C			E			A		
d_I, Intersection Delay [s/veh]	60.20											
Intersection LOS	E											
Intersection V/C	1.061											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	48.85	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.791	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	713	887	0	0
d_b, Bicycle Delay [s]	23.81	17.81	57.50	57.50
I_b,int, Bicycle LOS Score for Intersection	2.522	1.950	4.132	4.132
Bicycle LOS	B	A	D	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	115	411	19	115	395	117	213	117	65	35	89	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	212	461	0	3	170	169	226	61	141	0	85	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	334	897	20	125	589	293	452	185	210	37	179	109
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	280	6	39	184	92	141	58	66	12	56	34
Total Analysis Volume [veh/h]	418	1121	25	156	736	366	565	231	263	46	224	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	42	0	9	35	0	20	21	0	18	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	43	43	5	36	36	16	23	23	3	10	10
g / C, Green / Cycle	0.13	0.48	0.48	0.06	0.40	0.40	0.18	0.25	0.25	0.04	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.12	0.22	0.02	0.05	0.14	0.23	0.16	0.06	0.17	0.01	0.06	0.09
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	463	2430	758	196	2036	635	616	889	397	136	395	176
d1, Uniform Delay [s]	38.48	15.81	12.53	42.03	18.99	21.11	36.41	27.15	30.42	42.18	38.03	38.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.77	0.63	0.08	7.27	0.50	3.77	6.05	0.15	1.90	1.46	1.28	6.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.46	0.03	0.80	0.36	0.58	0.92	0.26	0.66	0.34	0.57	0.77
d, Delay for Lane Group [s/veh]	45.25	16.44	12.61	49.31	19.49	24.88	42.46	27.30	32.32	43.63	39.31	45.93
Lane Group LOS	D	B	B	D	B	C	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.90	5.02	0.28	1.89	3.57	6.43	6.49	1.98	5.22	0.52	2.39	3.22
50th-Percentile Queue Length [ft/ln]	122.60	125.54	6.89	47.29	89.28	160.79	162.25	49.53	130.41	13.03	59.64	80.55
95th-Percentile Queue Length [veh/ln]	8.54	8.70	0.50	3.40	6.43	10.59	10.67	3.57	8.96	0.94	4.29	5.80
95th-Percentile Queue Length [ft/ln]	213.39	217.42	12.41	85.12	160.71	264.76	266.70	89.15	224.05	23.45	107.35	144.99

Movement, Approach, & Intersection Results

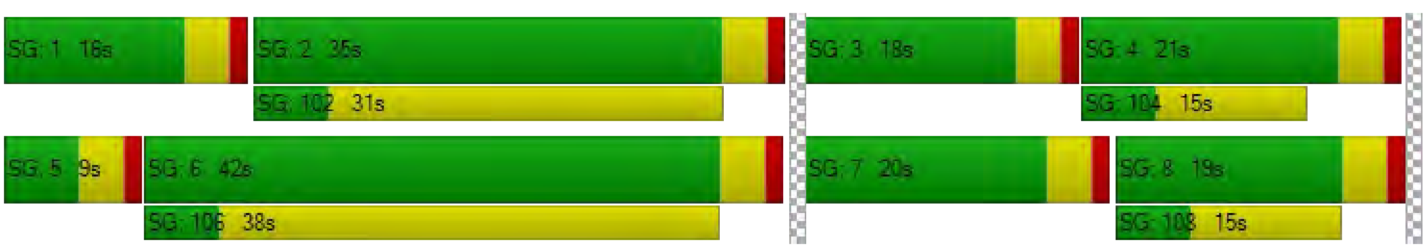
d_M, Delay for Movement [s/veh]	45.25	16.44	12.61	49.31	19.49	24.88	42.46	27.30	32.32	43.63	39.31	45.93
Movement LOS	D	B	B	D	B	C	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	24.08			24.76			36.64			42.02		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.08											
Intersection LOS	C											
Intersection V/C	0.730											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	3.133	3.184	2.883	2.709
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	844	689	378	333
d_b, Bicycle Delay [s]	15.02	19.34	29.61	31.25
I_b,int, Bicycle LOS Score for Intersection	2.420	2.252	2.433	1.895
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	Signalized	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	56	24	10	5	126	26	237	122	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	49	0	0	822	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	59	25	11	5	183	28	252	951	41
Peak Hour Factor	1.0000	1.0000	1.0000	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	18	8	3	2	55	8	76	286	12
Total Analysis Volume [veh/h]	0	0	0	71	30	13	6	220	34	304	1146	49
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	0	0	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	9	0	0	18	0	0	33	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	20	0	0	0	0	0	0	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	L	C	C	C
C, Cycle Length [s]		60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		10	10	10	10	10	28	28
g / C, Green / Cycle		0.17	0.17	0.17	0.17	0.17	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate		0.04	0.02	0.01	0.00	0.14	0.43	0.43
s, saturation flow rate [veh/h]		1781	1870	1589	1781	1827	1834	1681
c, Capacity [veh/h]		298	313	266	305	313	847	776
d1, Uniform Delay [s]		21.71	21.18	21.02	20.72	23.98	15.22	15.20
k, delay calibration		0.50	0.50	0.50	0.11	0.11	0.35	0.34
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.87	0.61	0.35	0.03	5.02	13.04	13.69
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.24	0.10	0.05	0.02	0.81	0.92	0.92
d, Delay for Lane Group [s/veh]		23.58	21.79	21.36	20.74	29.00	28.26	28.89
Lane Group LOS		C	C	C	C	C	C	C
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.97	0.39	0.17	0.07	3.67	11.42	10.58
50th-Percentile Queue Length [ft/ln]		24.20	9.70	4.24	1.70	91.73	285.40	264.44
95th-Percentile Queue Length [veh/ln]		1.74	0.70	0.31	0.12	6.60	16.96	15.91
95th-Percentile Queue Length [ft/ln]		43.55	17.46	7.64	3.07	165.12	423.93	397.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	23.58	21.79	21.36	20.74	29.00	29.00	28.26	28.62	28.89
Movement LOS				C	C	C	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	0.00			22.86			28.81			28.56		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	28.25											
Intersection LOS	C											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	29.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	8.01	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.113	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	167	467	967
d_b, Bicycle Delay [s]	30.00	25.21	17.63	8.01
I_b,int, Bicycle LOS Score for Intersection	4.132	1.748	1.989	2.796
Bicycle LOS	D	A	A	C

Sequence

Ring 1	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	38.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	246	360	569	157	286	51	21	86	94	464	116	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	243	8	5	0	11	0	0	7	42	3	579	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	504	390	609	167	315	54	22	98	142	495	702	127
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	142	110	171	47	88	15	6	28	40	139	197	36
Total Analysis Volume [veh/h]	566	438	684	188	354	61	25	110	160	556	789	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	44	40	0	13	9	0	10	25	0	42	57	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	59	59	59	8	45	45	3	14	14	22	34	34	34
g / C, Green / Cycle	0.19	0.49	0.49	0.49	0.07	0.37	0.37	0.02	0.12	0.12	0.19	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.16	0.12	0.22	0.22	0.05	0.07	0.04	0.01	0.03	0.10	0.16	0.17	0.25	0.09
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1870	1589
c, Capacity [veh/h]	655	1742	778	778	245	1888	589	44	430	192	644	528	528	449
d1, Uniform Delay [s]	47.17	17.86	19.96	19.96	54.81	25.55	24.72	57.94	47.90	51.62	47.39	37.38	41.20	33.99
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.58	0.35	1.80	1.80	5.00	0.22	0.35	11.32	0.31	9.11	3.62	1.15	5.64	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.25	0.44	0.44	0.77	0.19	0.10	0.57	0.26	0.83	0.86	0.61	0.88	0.32
d, Delay for Lane Group [s/veh]	50.75	18.21	21.76	21.76	59.80	25.77	25.07	69.26	48.21	60.73	51.01	38.53	46.84	34.39
Lane Group LOS	D	B	C	C	E	C	C	E	D	E	D	D	D	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.50	3.61	6.54	6.54	2.96	2.33	1.20	0.89	1.52	5.19	8.36	8.38	13.90	3.36
50th-Percentile Queue Length [ft/ln]	212.4	90.28	163.6	163.6	74.10	58.28	30.12	22.23	37.98	129.74	208.9	209.4	347.4	83.94
95th-Percentile Queue Length [veh/ln]	13.28	6.50	10.74	10.74	5.34	4.20	2.17	1.60	2.73	8.93	13.10	13.13	20.01	6.04
95th-Percentile Queue Length [ft/ln]	331.9	162.5	268.5	268.5	133.38	104.91	54.21	40.01	68.37	223.14	327.5	328.1	500.2	151.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.75	18.21	21.76	59.80	25.77	25.07	69.26	48.21	60.73	51.01	43.44	34.39
Movement LOS	D	B	C	E	C	C	E	D	E	D	D	C
d_A, Approach Delay [s/veh]	30.56			36.31			56.78			45.40		
Approach LOS	C			D			E			D		
d_I, Intersection Delay [s/veh]	38.73											
Intersection LOS	D											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	36.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	49.50	0.00	29.40
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.994	0.000	3.110
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	83	350	883
d_b, Bicycle Delay [s]	29.40	55.10	40.84	18.70
I_b,int, Bicycle LOS Score for Intersection	2.488	1.891	1.803	2.787
Bicycle LOS	B	A	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix L

Post-Event Hour Concert Sellout EAPC Analysis

Intersections

Without TMP Measures

With TMP Measures

Without TMP Measures

Intersection Level Of Service Report
Intersection 1: Monterey Avenue and Varner Road

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.201

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	206.00	100.00	150.00	195.00	100.00	120.00	265.00	100.00	275.00	358.00	100.00	50.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Monterey Avenue			Monterey Avenue			Varner Road			Varner Road		
Base Volume Input [veh/h]	57	39	3	3	35	7	11	12	75	23	35	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	54	3	2	0	0	10	0	204	83	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	42	57	6	39	7	12	23	80	228	120	32
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	12	17	2	11	2	3	7	23	66	35	9
Total Analysis Volume [veh/h]	70	49	66	7	45	8	14	27	93	265	140	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	36	0	10	37	0	9	9	0	10	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	26	0	0	27	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	38	38	1	35	35	1	4	4	4	6	9	9
g / C, Green / Cycle	0.06	0.58	0.58	0.01	0.54	0.54	0.02	0.07	0.07	0.07	0.09	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.04	0.00	0.01	0.01	0.01	0.01	0.03	0.03	0.08	0.04	0.02
s, saturation flow rate [veh/h]	3459	3560	1589	1781	3560	1589	1781	1870	1589	1589	3459	3560	1589
c, Capacity [veh/h]	195	2082	929	18	1917	856	33	125	106	106	321	503	225
d1, Uniform Delay [s]	29.60	5.70	5.86	32.04	7.02	6.97	31.64	28.78	29.22	29.22	29.03	25.00	24.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.12	0.02	0.15	13.02	0.02	0.02	8.74	0.86	2.83	2.83	5.36	0.30	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.02	0.07	0.39	0.02	0.01	0.43	0.22	0.44	0.44	0.83	0.28	0.16
d, Delay for Lane Group [s/veh]	30.72	5.72	6.01	45.06	7.05	6.99	40.38	29.64	32.05	32.05	34.39	25.30	24.93
Lane Group LOS	C	A	A	D	A	A	D	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.54	0.12	0.36	0.17	0.13	0.05	0.29	0.41	0.75	0.75	2.18	0.94	0.50
50th-Percentile Queue Length [ft/ln]	13.42	3.02	8.92	4.27	3.26	1.22	7.22	10.31	18.82	18.82	54.47	23.51	12.48
95th-Percentile Queue Length [veh/ln]	0.97	0.22	0.64	0.31	0.23	0.09	0.52	0.74	1.35	1.35	3.92	1.69	0.90
95th-Percentile Queue Length [ft/ln]	24.16	5.44	16.06	7.69	5.87	2.19	12.99	18.56	33.87	33.87	98.04	42.31	22.47

Movement, Approach, & Intersection Results

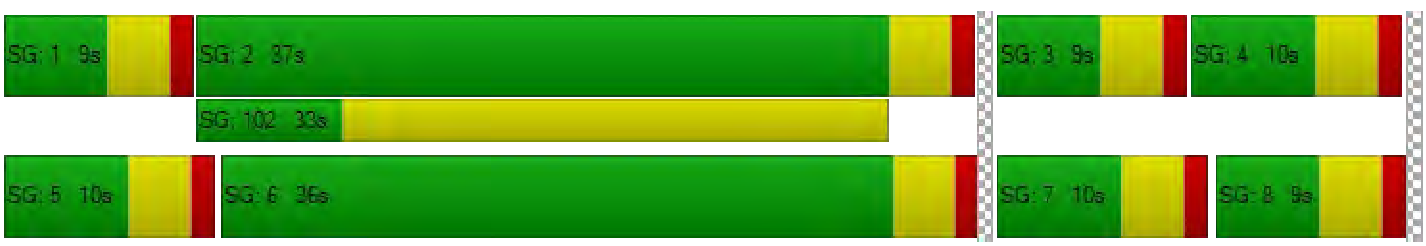
d_M, Delay for Movement [s/veh]	30.72	5.72	6.01	45.06	7.05	6.99	40.38	29.64	32.05	34.39	25.30	24.93
Movement LOS	C	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	15.28			11.47			32.44			30.72		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	26.11											
Intersection LOS	C											
Intersection V/C	0.201											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	6.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	26.78	22.43	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.468	2.492	0.000
Crosswalk LOS	F	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	985	1015	154	185
d_b, Bicycle Delay [s]	8.38	7.88	27.69	26.78
I_b,int, Bicycle LOS Score for Intersection	1.712	1.609	1.670	1.924
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Monterey Avenue and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.226

Intersection Setup

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			No	

Volumes

Name	Monterey Avenue			Monterey Avenue			I-10 EB Off-Ramp					
Base Volume Input [veh/h]	0	151	48	65	64	0	15	1	54	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	153	71	0	189	0	24	0	105	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	313	122	69	257	0	40	1	162	0	0	0
Peak Hour Factor	1.0000	0.8200	0.8200	0.8200	0.8200	1.0000	0.8200	0.8200	0.8200	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	37	21	78	0	12	0	49	0	0	0
Total Analysis Volume [veh/h]	0	382	149	84	313	0	49	1	198	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	18	0	9	27	0	0	33	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	18	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	4	46	6	6	6	
g / C, Green / Cycle	0.63	0.63	0.06	0.76	0.10	0.10	0.10	
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.02	0.09	0.03	0.06	0.06	
s, saturation flow rate [veh/h]	5094	1589	3459	3560	1781	1592	1589	
c, Capacity [veh/h]	3221	1005	224	2719	184	165	164	
d1, Uniform Delay [s]	4.40	4.49	26.96	1.84	24.87	25.79	25.80	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.08	0.31	1.04	0.09	0.76	3.54	3.55	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.12	0.15	0.37	0.12	0.27	0.60	0.60	
d, Delay for Lane Group [s/veh]	4.47	4.80	28.00	1.93	25.63	29.34	29.35	
Lane Group LOS	A	A	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.47	0.62	0.58	0.21	0.65	1.45	1.45	
50th-Percentile Queue Length [ft/ln]	11.66	15.44	14.52	5.32	16.21	36.16	36.13	
95th-Percentile Queue Length [veh/ln]	0.84	1.11	1.05	0.38	1.17	2.60	2.60	
95th-Percentile Queue Length [ft/ln]	21.00	27.79	26.13	9.57	29.18	65.09	65.03	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	4.47	4.80	28.00	1.93	0.00	25.63	29.34	29.34	0.00	0.00	0.00
Movement LOS		A	A	C	A		C	C	C			
d_A, Approach Delay [s/veh]	4.56			7.44			28.61			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	10.61											
Intersection LOS	B											
Intersection V/C	0.226											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.001	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	767	967	0
d_b, Bicycle Delay [s]	17.63	11.41	8.01	30.00
I_b,int, Bicycle LOS Score for Intersection	1.852	1.887	1.969	4.132
Bicycle LOS	A	A	A	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Jack Ivey Drive and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	Jack Ivey Drive		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Jack Ivey Drive		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	1	11	14	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	34	57	10	199	18
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	34	58	22	214	18
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	11	18	7	68	6
Total Analysis Volume [veh/h]	9	43	73	28	271	23
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.06	0.06	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.92	10.05	8.01	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.18	0.18	0.18	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.30	4.51	4.58	4.58	0.00	0.00
d_A, Approach Delay [s/veh]	10.37		5.79		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.52					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	1,513.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.256

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	7	3	5	0	8	1	0	11	4	4	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	22	145	108	842	49	0	10	7	2038	152	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	25	150	108	850	50	0	22	11	2042	157	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	46	33	259	15	0	7	3	623	48	0
Total Analysis Volume [veh/h]	28	30	183	132	1037	61	0	27	13	2490	191	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	39	0	10	40	0	9	36	0	15	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	64	64	6	67	67	0	3	11	14	14
g / C, Green / Cycle	0.03	0.64	0.64	0.06	0.67	0.67	0.00	0.03	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.12	0.07	0.30	0.30	0.00	0.02	0.72	0.10	0.00
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1834	1781	1769	3459	1870	1589
c, Capacity [veh/h]	50	1186	1008	108	1247	1223	2	61	382	270	229
d1, Uniform Delay [s]	48.04	6.81	7.58	47.02	7.90	7.91	0.00	47.73	44.53	40.85	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.29	0.04	0.40	115.18	1.15	1.17	0.00	11.07	2485.17	3.42	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.03	0.18	1.22	0.44	0.44	0.00	0.65	6.51	0.71	0.00
d, Delay for Lane Group [s/veh]	57.33	6.85	7.97	162.21	9.05	9.08	0.00	58.81	2529.71	44.27	0.00
Lane Group LOS	E	A	A	F	A	A	A	E	F	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.82	0.23	1.61	6.15	5.39	5.31	0.00	1.17	136.71	4.71	0.00
50th-Percentile Queue Length [ft/ln]	20.42	5.85	40.28	153.71	134.79	132.63	0.00	29.24	3417.82	117.63	0.00
95th-Percentile Queue Length [veh/ln]	1.47	0.42	2.90	10.80	9.20	9.08	0.00	2.11	200.51	8.26	0.00
95th-Percentile Queue Length [ft/ln]	36.75	10.54	72.50	269.91	230.00	227.07	0.00	52.63	5012.78	206.57	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.33	6.85	7.97	162.21	9.07	9.08	0.00	58.81	58.81	2529.71	44.27	0.00
Movement LOS	E	A	A	F	A	A	A	E	E	F	D	A
d_A, Approach Delay [s/veh]	13.57			25.50			58.81			2352.64		
Approach LOS	B			C			E			F		
d_I, Intersection Delay [s/veh]	1513.46											
Intersection LOS	F											
Intersection V/C	1.256											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	3.072	2.443	2.049	2.949
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	720	640	760
d_b, Bicycle Delay [s]	21.13	20.48	23.12	19.22
I_b,int, Bicycle LOS Score for Intersection	1.957	2.574	1.626	5.983
Bicycle LOS	A	B	A	F

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	308.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.088

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	15	0	0	14	3	0	0	0	44	3	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	162	0	0	854	2033	0	0	0	49	0	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	178	0	0	869	2036	0	0	0	96	3	22
Peak Hour Factor	1.0000	0.8000	1.0000	1.0000	0.8000	0.8000	1.0000	1.0000	1.0000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	0	0	272	636	0	0	0	30	1	7
Total Analysis Volume [veh/h]	0	223	0	0	1086	2545	0	0	0	120	4	28
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	51	0	0	51	0	0	0	0	0	9	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	47	47	47		5	5
g / C, Green / Cycle	0.78	0.78	0.78		0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.06	0.31	1.60		0.07	0.02
s, saturation flow rate [veh/h]	3560	3560	1589		1784	1589
c, Capacity [veh/h]	2778	2778	1240		154	137
d1, Uniform Delay [s]	1.55	2.09	6.60		26.93	25.51
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.06	0.42	476.19		9.33	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.39	2.05		0.80	0.20
d, Delay for Lane Group [s/veh]	1.60	2.50	482.79		36.27	26.23
Lane Group LOS	A	A	F		D	C
Critical Lane Group	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	0.11	0.75	168.32		2.05	0.38
50th-Percentile Queue Length [ft/ln]	2.79	18.73	4207.90		51.23	9.51
95th-Percentile Queue Length [veh/ln]	0.20	1.35	281.65		3.69	0.68
95th-Percentile Queue Length [ft/ln]	5.02	33.72	7041.31		92.21	17.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	1.60	0.00	0.00	2.50	482.79	0.00	0.00	0.00	36.27	36.27	26.23
Movement LOS		A			A	F				D	D	C
d_A, Approach Delay [s/veh]	1.60			339.14			0.00			34.42		
Approach LOS	A			F			A			C		
d_I, Intersection Delay [s/veh]	308.79											
Intersection LOS	F											
Intersection V/C	2.088											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.889	0.000
Crosswalk LOS	F	F	D	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1567	1567	0	167
d_b, Bicycle Delay [s]	1.41	1.41	30.00	25.21
I_b,int, Bicycle LOS Score for Intersection	1.744	3.557	4.132	1.810
Bicycle LOS	A	D	D	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.386

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	73	54	5	52	0	3	3	87	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	95	37	240	663	0	109	0	60	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	172	94	245	718	0	112	3	152	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	51	28	73	214	0	33	1	45	0	0	0
Total Analysis Volume [veh/h]	0	205	112	292	855	0	133	4	181	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	21	30	0	0	30	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	29	29	12	45	7	7	7	
g / C, Green / Cycle	0.49	0.49	0.20	0.75	0.12	0.12	0.12	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.07	0.16	0.17	0.07	0.06	0.06	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1600	1589	
c, Capacity [veh/h]	1727	771	351	3815	210	189	188	
d1, Uniform Delay [s]	8.46	8.58	23.18	2.28	25.29	24.84	24.84	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.14	0.40	5.09	0.14	3.12	1.97	1.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.12	0.15	0.83	0.22	0.63	0.49	0.49	
d, Delay for Lane Group [s/veh]	8.60	8.98	28.27	2.41	28.41	26.81	26.82	
Lane Group LOS	A	A	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.65	0.77	4.17	0.49	1.89	1.27	1.26	
50th-Percentile Queue Length [ft/ln]	16.30	19.25	104.34	12.29	47.14	31.75	31.59	
95th-Percentile Queue Length [veh/ln]	1.17	1.39	7.51	0.89	3.39	2.29	2.27	
95th-Percentile Queue Length [ft/ln]	29.34	34.64	187.81	22.13	84.84	57.16	56.86	

Movement, Approach, & Intersection Results

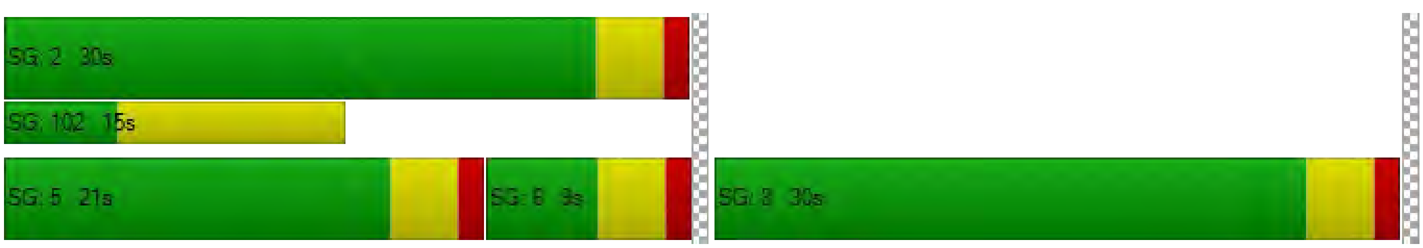
d_M, Delay for Movement [s/veh]	0.00	8.60	8.98	28.27	2.41	0.00	28.41	26.81	26.82	0.00	0.00	0.00
Movement LOS		A	A	C	A		C	C	C			
d_A, Approach Delay [s/veh]	8.73			9.00			27.48			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	12.25											
Intersection LOS	B											
Intersection V/C	0.386											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.024	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	867	867	0
d_b, Bicycle Delay [s]	25.21	9.63	9.63	30.00
I_b,int, Bicycle LOS Score for Intersection	1.734	2.190	2.084	4.132
Bicycle LOS	A	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Cook Street and Gerald Ford Drive

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.311

Intersection Setup

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	250.00	100.00	115.00	370.00	100.00	170.00	260.00	100.00	180.00	205.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Gerald Ford Drive			Gerald Ford Drive		
Base Volume Input [veh/h]	10	80	4	38	98	16	29	18	11	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	84	77	0	1	501	221	54	41	57	0	31	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	162	4	41	605	238	85	60	69	5	36	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	48	1	12	178	70	25	18	20	1	11	2
Total Analysis Volume [veh/h]	112	191	5	48	712	280	100	71	81	6	42	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	48	0	12	35	0	21	30	0	10	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	33	0	0	26	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	72	72	4	70	70	5	8	8	1	4	4
g / C, Green / Cycle	0.05	0.72	0.72	0.04	0.70	0.70	0.05	0.08	0.08	0.01	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.00	0.01	0.14	0.18	0.03	0.02	0.05	0.00	0.01	0.01
s, saturation flow rate [veh/h]	3459	5094	1589	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	182	3646	1138	131	3571	1114	166	277	123	31	137	61
d1, Uniform Delay [s]	46.45	4.20	4.06	46.99	5.20	5.43	46.74	43.46	44.88	49.27	46.83	46.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	0.03	0.01	1.70	0.13	0.54	3.49	0.49	5.79	3.05	1.24	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.05	0.00	0.37	0.20	0.25	0.60	0.26	0.66	0.20	0.31	0.13
d, Delay for Lane Group [s/veh]	49.82	4.23	4.07	48.69	5.33	5.97	50.23	43.95	50.67	52.32	48.07	47.46
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.44	0.34	0.03	0.61	1.53	2.00	1.30	0.84	2.14	0.09	0.53	0.21
50th-Percentile Queue Length [ft/ln]	36.08	8.46	0.68	15.30	38.17	49.93	32.38	21.08	53.54	2.18	13.27	5.20
95th-Percentile Queue Length [veh/ln]	2.60	0.61	0.05	1.10	2.75	3.60	2.33	1.52	3.86	0.16	0.96	0.37
95th-Percentile Queue Length [ft/ln]	64.94	15.23	1.22	27.54	68.71	89.88	58.29	37.95	96.38	3.92	23.88	9.36

Movement, Approach, & Intersection Results

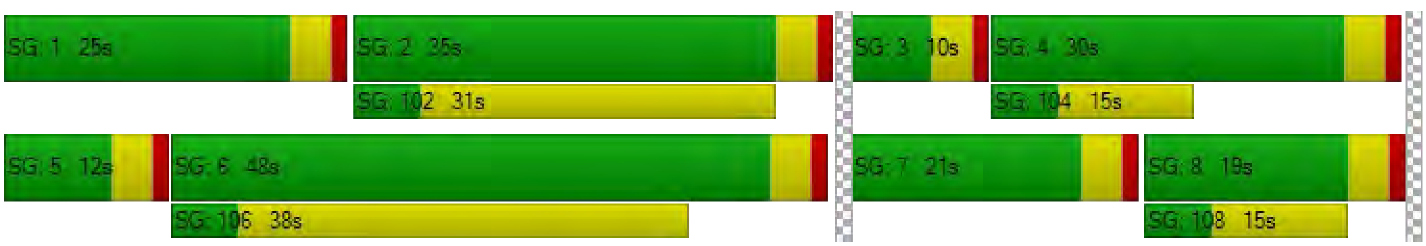
d_M, Delay for Movement [s/veh]	49.82	4.23	4.07	48.69	5.33	5.97	50.23	43.95	50.67	52.32	48.07	47.46
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	20.81			7.50			48.60			48.44		
Approach LOS	C			A			D			D		
d_I, Intersection Delay [s/veh]	17.61											
Intersection LOS	B											
Intersection V/C	0.311											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.976	3.001	2.696	2.626
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	880	620	520	300
d_b, Bicycle Delay [s]	15.68	23.81	27.38	36.13
I_b,int, Bicycle LOS Score for Intersection	1.729	2.132	1.768	1.606
Bicycle LOS	A	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Cook Street and Frank Sinatra Drive

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.414

Intersection Setup

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	175.00	100.00	100.00	250.00	100.00	218.00	223.00	100.00	135.00	190.00	100.00	265.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Frank Sinatra Drive			Frank Sinatra Drive		
Base Volume Input [veh/h]	16	75	1	1	102	11	16	18	10	4	10	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	148	1	20	467	68	16	0	3	3	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	228	2	21	575	80	33	19	14	7	11	3
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	70	1	6	177	25	10	6	4	2	3	1
Total Analysis Volume [veh/h]	23	281	2	26	710	99	41	23	17	9	14	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	7	4	0	3	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	9	43	0	11	19	0	29	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	27	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	26	26	26	26	26	26	26	26	26	26	26	26
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	7	7	1	7	7	1	2	2	0	1	1
g / C, Green / Cycle	0.03	0.28	0.28	0.03	0.29	0.29	0.05	0.06	0.06	0.01	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.01	0.08	0.08	0.01	0.14	0.06	0.01	0.01	0.01	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3459	1870	1865	3459	5094	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	108	528	527	120	1458	455	178	225	100	45	89	40
d1, Uniform Delay [s]	12.47	7.35	7.35	12.39	7.81	7.17	12.01	11.65	11.70	12.88	12.59	12.58
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.98	0.27	0.27	0.90	0.25	0.24	0.65	0.20	0.79	2.10	0.82	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.27	0.27	0.22	0.49	0.22	0.23	0.10	0.17	0.20	0.16	0.10
d, Delay for Lane Group [s/veh]	13.45	7.62	7.62	13.28	8.06	7.41	12.67	11.85	12.49	14.98	13.42	13.68
Lane Group LOS	B	A	A	B	A	A	B	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.06	0.40	0.40	0.07	0.67	0.28	0.10	0.05	0.09	0.03	0.04	0.03
50th-Percentile Queue Length [ft/ln]	1.58	10.00	9.99	1.74	16.86	6.89	2.50	1.30	2.25	0.82	1.00	0.73
95th-Percentile Queue Length [veh/ln]	0.11	0.72	0.72	0.12	1.21	0.50	0.18	0.09	0.16	0.06	0.07	0.05
95th-Percentile Queue Length [ft/ln]	2.84	18.00	17.99	3.12	30.34	12.41	4.50	2.34	4.05	1.47	1.79	1.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.45	7.62	7.62	13.28	8.06	7.41	12.67	11.85	12.49	14.98	13.42	13.68
Movement LOS	B	A	A	B	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	8.06			8.15			12.40			13.98		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	8.53											
Intersection LOS	A											
Intersection V/C	0.414											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.746	2.982	2.631	2.611
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	780	780	300	660
d_b, Bicycle Delay [s]	18.61	18.61	36.13	22.45
I_b,int, Bicycle LOS Score for Intersection	1.812	2.019	1.626	1.582
Bicycle LOS	A	B	A	A

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 9: Cook Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.253

Intersection Setup

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	230.00	100.00	122.00	176.00	100.00	173.00	265.00	100.00	154.00	240.00	100.00	175.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	15	67	5	11	83	15	12	46	22	10	27	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	114	3	52	315	90	13	50	1	5	49	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	185	8	64	403	106	26	99	24	16	78	27
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	65	3	23	142	37	9	35	8	6	27	10
Total Analysis Volume [veh/h]	24	261	11	90	568	149	37	139	34	23	110	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	38	0	10	39	0	10	41	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	28	0	0	30	0	0	27	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	71	71	5	73	73	3	6	6	2	5	5
g / C, Green / Cycle	0.02	0.71	0.71	0.05	0.73	0.73	0.03	0.06	0.06	0.02	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.01	0.03	0.16	0.09	0.01	0.04	0.02	0.01	0.03	0.02
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	86	2520	1125	161	2597	1159	113	219	98	84	189	84
d1, Uniform Delay [s]	47.90	4.61	4.30	46.71	4.36	4.04	47.32	45.85	45.02	47.96	46.29	45.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.73	0.08	0.02	3.04	0.19	0.23	1.66	3.01	2.10	1.75	2.82	3.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.10	0.01	0.56	0.22	0.13	0.33	0.63	0.35	0.27	0.58	0.45
d, Delay for Lane Group [s/veh]	49.63	4.69	4.32	49.76	4.56	4.27	48.98	48.86	47.12	49.71	49.11	49.67
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.31	0.76	0.06	1.16	1.63	0.83	0.47	1.77	0.86	0.30	1.40	1.00
50th-Percentile Queue Length [ft/ln]	7.83	19.07	1.57	28.98	40.73	20.81	11.87	44.24	21.58	7.52	35.10	24.99
95th-Percentile Queue Length [veh/ln]	0.56	1.37	0.11	2.09	2.93	1.50	0.85	3.19	1.55	0.54	2.53	1.80
95th-Percentile Queue Length [ft/ln]	14.10	34.33	2.82	52.16	73.32	37.46	21.37	79.63	38.84	13.54	63.18	44.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.63	4.69	4.32	49.76	4.56	4.27	48.98	48.86	47.12	49.71	49.11	49.67
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]		8.32			9.54			48.60			49.31	
Approach LOS		A			A			D			D	
d_I, Intersection Delay [s/veh]						19.41						
Intersection LOS						B						
Intersection V/C						0.253						

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.844	2.760	2.669	2.658
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	680	700	740	760
d_b, Bicycle Delay [s]	21.78	21.13	19.85	19.22
I_b,int, Bicycle LOS Score for Intersection	1.804	2.225	1.733	1.701
Bicycle LOS	A	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 10: Varner Road and Classic Club Blvd

Control Type:	Signalized	Delay (sec / veh):	5.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.853

Intersection Setup

Name	Varner Road		Varner Road		Classic Club Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	218.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	Varner Road		Varner Road		Classic Club Blvd	
Base Volume Input [veh/h]	11	0	0	16	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2190	0	0	263	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2202	0	0	280	0	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	663	0	0	84	0	0
Total Analysis Volume [veh/h]	2653	0	0	337	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	6	0	5	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	41	0	9	50	45	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	29	0	0	10	36	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	0	87	0	0	0
g / C, Green / Cycle	0.87	0.87	0.00	0.92	0.00	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.75	0.00	0.00	0.09	0.00	0.00	0.00
s, saturation flow rate [veh/h]	3560	1589	3459	3560	1781	1870	1589
c, Capacity [veh/h]	3106	1387	2	3258	1	1	1
d1, Uniform Delay [s]	3.03	0.00	0.00	0.38	0.00	0.00	0.00
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.23	0.00	0.00	0.06	0.00	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.00	0.00	0.10	0.00	0.00	0.00
d, Delay for Lane Group [s/veh]	6.26	0.00	0.00	0.44	0.00	0.00	0.00
Lane Group LOS	A	A	A	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	3.82	0.00	0.00	0.03	0.00	0.00	0.00
50th-Percentile Queue Length [ft/ln]	95.42	0.00	0.00	0.72	0.00	0.00	0.00
95th-Percentile Queue Length [veh/ln]	6.87	0.00	0.00	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	171.75	0.00	0.00	1.30	0.00	0.00	0.00

Movement, Approach, & Intersection Results

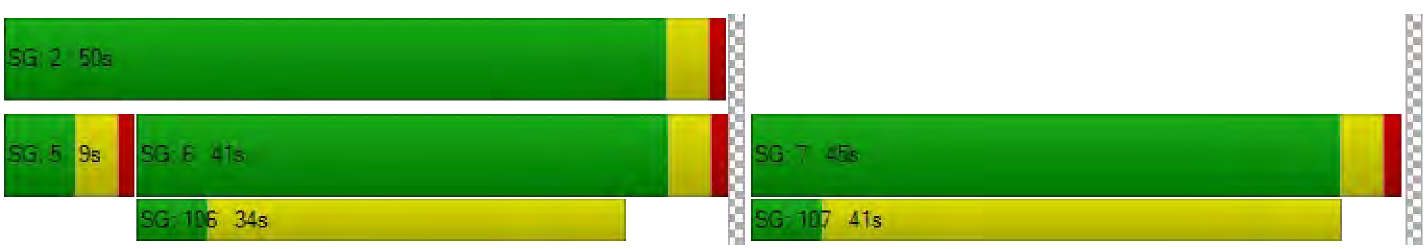
d_M, Delay for Movement [s/veh]	6.26	0.00	0.00	0.44	0.00	0.00
Movement LOS	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.26		0.44		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.61					
Intersection LOS	A					
Intersection V/C	0.853					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	38.93	38.93
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.943	2.304
Crosswalk LOS	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	47.50	47.50	47.50
I_b,int, Bicycle LOS Score for Intersection	6.321	4.410	4.132
Bicycle LOS	F	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Avenue 38 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Varner Road		Varner Road		Avenue 38	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Varner Road		Varner Road		Avenue 38	
Base Volume Input [veh/h]	11	0	1	8	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	0	0	925	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	0	1	933	1	0
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	0	0	292	0	0
Total Analysis Volume [veh/h]	90	0	1	1166	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.39	0.00	24.20	8.82
Movement LOS	A	A	A	A	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.05	0.00	0.40	0.40
d_A, Approach Delay [s/veh]	0.00		0.01		24.20	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	All-way stop	Delay (sec / veh):	365.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.873

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	4	1	1	1	10	1	27	12	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	925	0	0	60	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	1	1	1	936	1	29	73	11
Peak Hour Factor	1.0000	1.0000	1.0000	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	339	0	11	26	4
Total Analysis Volume [veh/h]	0	0	0	6	1	1	1	1357	1	42	106	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]		500	537	599	659	1358	572	611
Degree of Utilization, x		0.01	0.00	0.00	0.00	1.87	0.14	0.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.04	0.01	0.01	0.00	85.11	0.50	0.46
95th-Percentile Queue Length [ft]		0.91	0.14	0.13	0.11	2127.64	12.45	11.57
Approach Delay [s/veh]	0.00	9.76			410.62		9.78	
Approach LOS	A	A			F		A	
Intersection Delay [s/veh]	365.58							
Intersection LOS	F							

Intersection Level Of Service Report
Intersection 13: Washington Street and Avenue 38

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Washington St		Washington St		Avenue 38	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Washington St		Washington St		Avenue 38	
Base Volume Input [veh/h]	0	16	10	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	3	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	23	14	1	1	0
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	4	0	0	0
Total Analysis Volume [veh/h]	0	26	16	1	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.25	0.00	0.00	0.00	8.72	8.39
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.08	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.72	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 14: Washington Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	49.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	2	0	1	1	0	1	2	0	1
Pocket Length [ft]	222.00	100.00	100.00	160.00	100.00	100.00	218.00	100.00	100.00	310.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Washington Street			Washington Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	32	33	85	7	15	4	0	9	28	60	28	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	3	3	0	6	0	0	119	806	1	42	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	38	93	7	22	4	0	129	836	65	72	14
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	12	28	2	7	1	0	39	255	20	22	4
Total Analysis Volume [veh/h]	63	46	113	9	27	5	0	157	1020	79	88	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	9	0	9	9	0	9	48	0	9	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	39	0	0	0	0	0	35	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	R	L	C	R	L	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	9	9	9	1	6	6	0	45	45	4	49	49	49
g / C, Green / Cycle	0.05	0.12	0.12	0.12	0.01	0.09	0.09	0.00	0.60	0.60	0.05	0.65	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.04	0.04	0.00	0.01	0.00	0.00	0.04	0.64	0.02	0.02	0.03	0.01
s, saturation flow rate [veh/h]	3459	3560	1589	1589	3459	5094	1589	1781	3560	1589	3459	1870	1870	1589
c, Capacity [veh/h]	169	442	198	198	40	443	138	0	2126	949	186	1217	1217	1035
d1, Uniform Delay [s]	34.56	29.14	29.82	29.82	36.74	31.43	31.36	0.00	6.37	15.11	34.36	4.66	4.70	4.62
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.37	0.47	3.61	3.61	2.86	0.26	0.49	0.00	0.01	51.46	1.53	0.01	0.01	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.10	0.29	0.29	0.23	0.06	0.04	0.00	0.07	1.07	0.42	0.03	0.04	0.02
d, Delay for Lane Group [s/veh]	35.93	29.61	33.43	33.43	39.61	31.70	31.85	0.00	6.38	66.57	35.88	4.67	4.72	4.63
Lane Group LOS	D	C	C	C	D	C	C	A	A	F	D	A	A	A
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.58	0.39	1.10	1.10	0.10	0.16	0.10	0.00	0.45	26.49	0.72	0.16	0.24	0.08
50th-Percentile Queue Length [ft/ln]	14.38	9.69	27.48	27.48	2.39	3.93	2.50	0.00	11.37	662.20	17.99	4.05	5.99	1.92
95th-Percentile Queue Length [veh/ln]	1.04	0.70	1.98	1.98	0.17	0.28	0.18	0.00	0.82	37.03	1.30	0.29	0.43	0.14
95th-Percentile Queue Length [ft/ln]	25.89	17.44	49.47	49.47	4.30	7.07	4.49	0.00	20.47	925.65	32.39	7.29	10.79	3.46

Movement, Approach, & Intersection Results

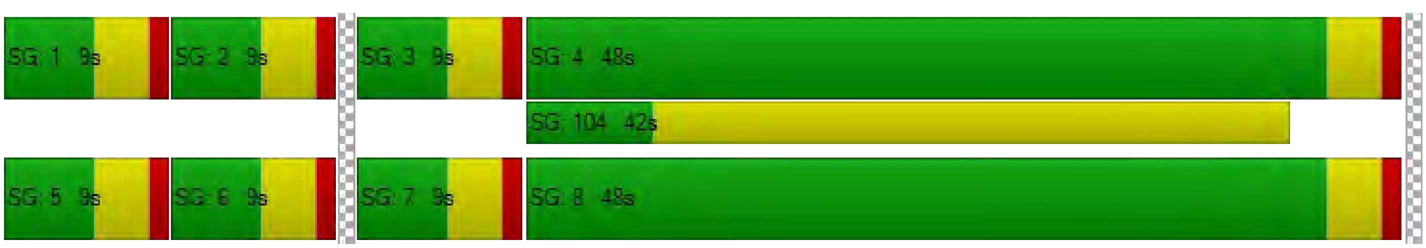
d_M, Delay for Movement [s/veh]	35.93	29.61	33.43	39.61	31.70	31.85	0.00	6.38	66.57	35.88	4.70	4.63
Movement LOS	D	C	C	D	C	C	A	A	F	D	A	A
d_A, Approach Delay [s/veh]	33.35			33.45			58.54			18.08		
Approach LOS	C			C			E			B		
d_I, Intersection Delay [s/veh]	49.88											
Intersection LOS	D											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	0.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	0.00	32.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.850	0.000	2.896
Crosswalk LOS	F	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	133	1173	1173
d_b, Bicycle Delay [s]	32.67	32.67	6.41	6.41
I_b,int, Bicycle LOS Score for Intersection	1.682	1.582	2.531	1.711
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	93.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	174	45	27	113	0	49	4	188	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	1	487	326	0	0	0	3	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	209	49	516	446	0	52	4	203	0	0	0
Peak Hour Factor	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	14	152	131	0	15	1	60	0	0	0
Total Analysis Volume [veh/h]	0	246	58	607	525	0	61	5	239	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	22	0	11	33	0	0	27	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	13	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	33	33	7	45	8	8	8	
g / C, Green / Cycle	0.56	0.56	0.12	0.74	0.13	0.13	0.13	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.06	0.18	0.10	0.02	0.02	0.08	
s, saturation flow rate [veh/h]	3560	1698	3459	5094	1781	1794	2813	
c, Capacity [veh/h]	1980	944	408	3771	226	227	356	
d1, Uniform Delay [s]	6.29	6.30	26.54	2.26	23.38	23.38	25.08	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.10	0.23	223.07	0.08	0.29	0.29	2.19	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.10	0.11	1.49	0.14	0.15	0.15	0.67	
d, Delay for Lane Group [s/veh]	6.39	6.53	249.60	2.34	23.67	23.67	27.27	
Lane Group LOS	A	A	F	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.51	0.55	15.36	0.31	0.41	0.41	1.64	
50th-Percentile Queue Length [ft/ln]	12.82	13.64	384.10	7.69	10.27	10.33	40.93	
95th-Percentile Queue Length [veh/ln]	0.92	0.98	24.99	0.55	0.74	0.74	2.95	
95th-Percentile Queue Length [ft/ln]	23.07	24.55	624.66	13.84	18.48	18.59	73.67	

Movement, Approach, & Intersection Results

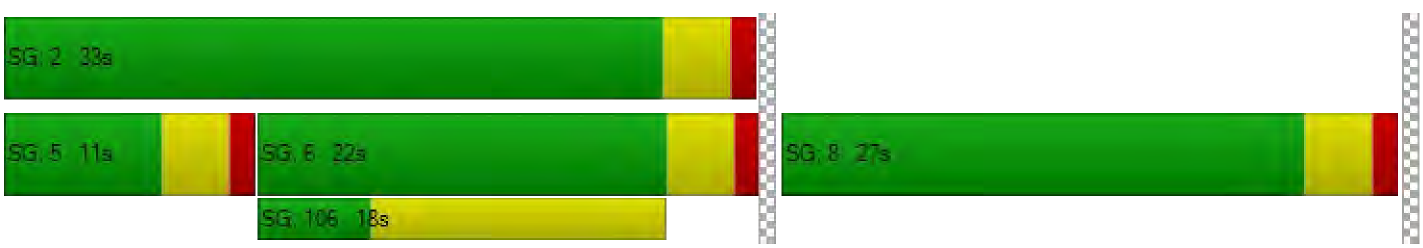
d_M, Delay for Movement [s/veh]	0.00	6.42	6.53	249.60	2.34	0.00	23.67	23.67	27.27	0.00	0.00	0.00
Movement LOS		A	A	F	A		C	C	C			
d_A, Approach Delay [s/veh]	6.44			134.93			26.49			0.00		
Approach LOS	A			F			C			A		
d_I, Intersection Delay [s/veh]	93.49											
Intersection LOS	F											
Intersection V/C	0.400											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.022
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	967	767	0
d_b, Bicycle Delay [s]	14.70	8.01	11.41	30.00
I_b,int, Bicycle LOS Score for Intersection	1.727	2.182	2.063	4.132
Bicycle LOS	A	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Washington Street and Country Club Drive

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.196

Intersection Setup

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	0	1	0	1
Pocket Length [ft]	189.00	100.00	100.00	222.00	100.00	200.00	240.00	100.00	100.00	223.00	100.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Washington Street			Washington Street			Country Club Drive			Country Club Drive		
Base Volume Input [veh/h]	16	112	7	28	149	21	31	52	19	7	23	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	25	0	0	329	0	0	23	1	0	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	144	7	30	487	22	33	78	21	7	59	13
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	45	2	9	152	7	10	24	7	2	18	4
Total Analysis Volume [veh/h]	23	180	9	38	609	28	41	98	26	9	74	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	43	0	11	45	0	9	40	0	11	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	34	0	0	26	0	0	29	0	0	33	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	77	77	3	78	78	4	7	7	1	5	5
g / C, Green / Cycle	0.02	0.74	0.74	0.03	0.75	0.75	0.03	0.07	0.07	0.01	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.04	0.01	0.12	0.02	0.01	0.03	0.04	0.01	0.02	0.01
s, saturation flow rate [veh/h]	3459	3560	1825	3459	5094	1589	3459	1870	1740	1781	3560	1589
c, Capacity [veh/h]	82	2623	1345	112	3797	1185	117	125	116	21	159	71
d1, Uniform Delay [s]	50.39	3.77	3.77	49.72	3.87	3.47	49.63	47.33	47.41	51.58	48.96	48.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.81	0.03	0.07	1.76	0.09	0.04	1.79	3.09	3.66	13.88	2.11	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.05	0.05	0.34	0.16	0.02	0.35	0.50	0.53	0.44	0.47	0.23
d, Delay for Lane Group [s/veh]	52.20	3.80	3.84	51.48	3.96	3.50	51.42	50.42	51.07	65.47	51.07	50.02
Lane Group LOS	D	A	A	D	A	A	D	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.32	0.32	0.35	0.51	1.07	0.14	0.55	1.69	1.66	0.31	0.99	0.44
50th-Percentile Queue Length [ft/ln]	7.93	7.99	8.65	12.86	26.85	3.52	13.85	42.18	41.62	7.86	24.78	10.88
95th-Percentile Queue Length [veh/ln]	0.57	0.58	0.62	0.93	1.93	0.25	1.00	3.04	3.00	0.57	1.78	0.78
95th-Percentile Queue Length [ft/ln]	14.27	14.38	15.57	23.15	48.34	6.34	24.94	75.92	74.92	14.14	44.60	19.59

Movement, Approach, & Intersection Results

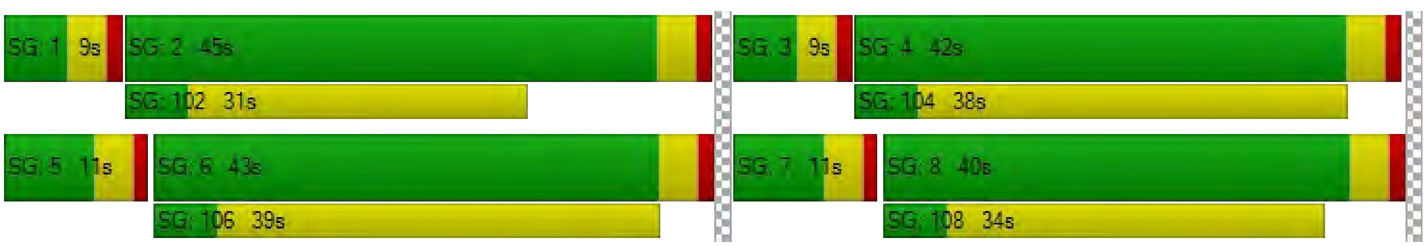
d_M, Delay for Movement [s/veh]	52.20	3.81	3.84	51.48	3.96	3.50	51.42	50.65	51.07	65.47	51.07	50.02
Movement LOS	D	A	A	D	A	A	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	9.07			6.61			50.91			52.21		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	17.34											
Intersection LOS	B											
Intersection V/C	0.196											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
I_p,int, Pedestrian LOS Score for Intersection	2.839	2.957	2.509	2.501
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	743	781	686	724
d_b, Bicycle Delay [s]	20.74	19.50	22.67	21.38
I_b,int, Bicycle LOS Score for Intersection	1.676	1.931	1.696	1.641
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	56	12	54	48	16	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	0	119	3	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	13	176	54	17	54
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	4	55	17	5	17
Total Analysis Volume [veh/h]	119	16	220	68	21	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	27	33	10	37
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	5	5	0	5
Pedestrian Clearance [s]	24	0	17	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	5	52	52	2	57
g / C, Green / Cycle	0.07	0.07	0.74	0.74	0.02	0.82
(v / s)_i Volume / Saturation Flow Rate	0.03	0.01	0.04	0.04	0.01	0.02
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	234	108	3746	1169	89	2913
d1, Uniform Delay [s]	31.56	30.79	2.56	2.56	33.49	1.18
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.70	0.63	0.03	0.10	1.35	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.15	0.06	0.06	0.24	0.02
d, Delay for Lane Group [s/veh]	33.26	31.42	2.59	2.66	34.83	1.20
Lane Group LOS	C	C	A	A	C	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.00	0.27	0.18	0.19	0.19	0.03
50th-Percentile Queue Length [ft/ln]	24.91	6.64	4.55	4.74	4.67	0.71
95th-Percentile Queue Length [veh/ln]	1.79	0.48	0.33	0.34	0.34	0.05
95th-Percentile Queue Length [ft/ln]	44.85	11.96	8.18	8.54	8.40	1.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.26	31.42	2.59	2.66	34.83	1.20
Movement LOS	C	C	A	A	C	A
d_A, Approach Delay [s/veh]	33.05		2.61		9.13	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	11.77					
Intersection LOS	B					
Intersection V/C	0.101					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	0.00	26.58
I_p,int, Pedestrian LOS Score for Intersection	2.332	0.000	2.628
Crosswalk LOS	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	35.00	35.00	35.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.291	4.206
Bicycle LOS	D	E	D

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

With TMP Measures

Intersection Level Of Service Report
Intersection 4: Cook Street and Varner Road

Control Type:	Signalized	Delay (sec / veh):	67.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	270.00	100.00	100.00	168.00	100.00	100.00	180.00	100.00	100.00	240.00	100.00	350.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cook Street			Cook Street			Varner Road			Varner Road		
Base Volume Input [veh/h]	7	3	5	0	8	1	0	11	4	4	5	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	22	145	108	842	49	0	10	7	2038	152	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	-900	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	25	150	108	850	50	0	22	11	1142	157	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	46	33	259	15	0	7	3	348	48	0
Total Analysis Volume [veh/h]	28	30	183	132	1037	61	0	27	13	1393	191	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	39	0	13	43	0	9	36	0	32	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	28	0	0	29	0	0	25	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	63	63	9	69	69	0	4	28	32	32
g / C, Green / Cycle	0.03	0.53	0.53	0.08	0.58	0.58	0.00	0.03	0.23	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.12	0.07	0.30	0.30	0.00	0.02	0.27	0.10	0.00
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1834	1781	1769	5188	1870	1589
c, Capacity [veh/h]	47	984	836	135	1077	1056	2	56	1210	493	419
d1, Uniform Delay [s]	57.84	13.69	15.23	55.40	15.36	15.37	0.00	57.60	46.03	36.23	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.74	0.06	0.60	31.43	1.76	1.80	0.00	15.66	70.34	0.50	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.03	0.22	0.98	0.51	0.52	0.00	0.72	1.15	0.39	0.00
d, Delay for Lane Group [s/veh]	69.57	13.75	15.83	86.83	17.12	17.17	0.00	73.26	116.36	36.73	0.00
Lane Group LOS	E	B	B	F	B	B	A	E	F	D	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.99	0.41	2.81	5.16	9.37	9.22	0.00	1.45	19.81	4.68	0.00
50th-Percentile Queue Length [ft/ln]	24.85	10.22	70.13	129.01	234.27	230.44	0.00	36.17	495.35	116.88	0.00
95th-Percentile Queue Length [veh/ln]	1.79	0.74	5.05	8.89	14.39	14.20	0.00	2.60	29.27	8.22	0.00
95th-Percentile Queue Length [ft/ln]	44.74	18.39	126.24	222.14	359.78	354.91	0.00	65.11	731.83	205.53	0.00

Movement, Approach, & Intersection Results

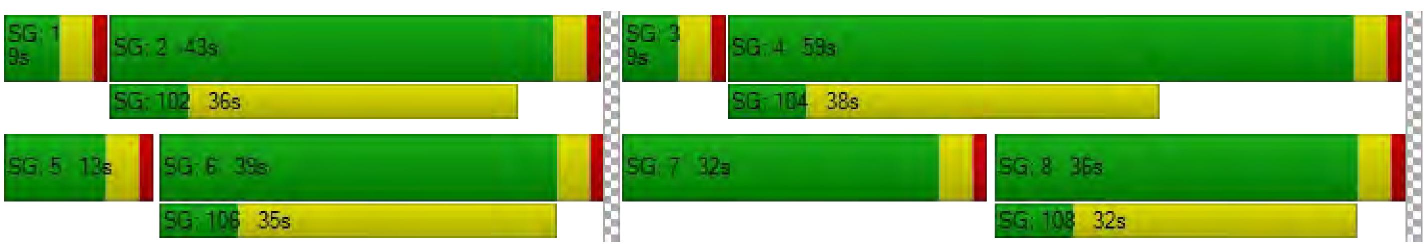
d_M, Delay for Movement [s/veh]	69.57	13.75	15.83	86.83	17.14	17.17	0.00	73.26	73.26	116.36	36.73	0.00
Movement LOS	E	B	B	F	B	B	A	E	E	F	D	A
d_A, Approach Delay [s/veh]	21.81			24.62			73.26			106.76		
Approach LOS	C			C			E			F		
d_I, Intersection Delay [s/veh]	67.07											
Intersection LOS	E											
Intersection V/C	0.696											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	2.903	2.452	2.058	2.876
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	650	533	917
d_b, Bicycle Delay [s]	30.10	27.34	32.27	17.60
I_b,int, Bicycle LOS Score for Intersection	1.957	2.574	1.626	4.173
Bicycle LOS	A	B	A	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	43.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.203

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	15	0	0	14	3	0	0	0	44	3	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	162	0	0	854	2033	0	0	0	49	0	21
Diverted Trips [veh/h]	0	0	0	0	0	-900	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	178	0	0	869	1136	0	0	0	96	3	22
Peak Hour Factor	1.0000	0.8000	1.0000	1.0000	0.8000	0.8000	1.0000	1.0000	1.0000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	0	0	272	355	0	0	0	30	1	7
Total Analysis Volume [veh/h]	0	223	0	0	1086	1420	0	0	0	120	4	28
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	51	0	0	51	0	0	0	0	0	9	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	47	47	47		5	5
g / C, Green / Cycle	0.78	0.78	0.78		0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.06	0.31	0.89		0.07	0.02
s, saturation flow rate [veh/h]	3560	3560	1589		1784	1589
c, Capacity [veh/h]	2778	2778	1240		154	137
d1, Uniform Delay [s]	1.55	2.09	6.60		26.93	25.51
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.06	0.42	75.15		9.33	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.39	1.14		0.80	0.20
d, Delay for Lane Group [s/veh]	1.60	2.50	81.75		36.27	26.23
Lane Group LOS	A	A	F		D	C
Critical Lane Group	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	0.11	0.75	30.15		2.05	0.38
50th-Percentile Queue Length [ft/ln]	2.79	18.73	753.73		51.23	9.51
95th-Percentile Queue Length [veh/ln]	0.20	1.35	43.88		3.69	0.68
95th-Percentile Queue Length [ft/ln]	5.02	33.72	1096.97		92.21	17.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	1.60	0.00	0.00	2.50	81.75	0.00	0.00	0.00	36.27	36.27	26.23
Movement LOS		A			A	F				D	D	C
d_A, Approach Delay [s/veh]	1.60			47.41			0.00			34.42		
Approach LOS	A			D			A			C		
d_I, Intersection Delay [s/veh]	43.18											
Intersection LOS	D											
Intersection V/C	1.203											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.792	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1567	1567	0	167
d_b, Bicycle Delay [s]	1.41	1.41	30.00	25.21
I_b,int, Bicycle LOS Score for Intersection	1.744	2.938	4.132	1.810
Bicycle LOS	A	C	D	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: Berkey Drive and Varner Road

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.938

Intersection Setup

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	I-10 WB On-Ramp			Berkey Drive			Varner Road			Varner Road		
Base Volume Input [veh/h]	0	0	0	4	1	1	1	10	1	27	12	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	925	0	0	60	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	900	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	1	1	1	936	901	29	73	11
Peak Hour Factor	1.0000	1.0000	1.0000	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	339	326	11	26	4
Total Analysis Volume [veh/h]	0	0	0	6	1	1	1	1357	1306	42	106	16
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	17	0	0	83	0	0	83	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	20	0	0	0	0	0	0	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	L	C	R	L	C	C
C, Cycle Length [s]		100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		15	15	15	77	77	77	77	77	77
g / C, Green / Cycle		0.15	0.15	0.15	0.77	0.77	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate		0.00	0.00	0.00	0.00	0.73	0.82	0.10	0.03	0.03
s, saturation flow rate [veh/h]		1781	1870	1589	1269	1870	1589	401	1870	1787
c, Capacity [veh/h]		258	271	230	1012	1449	1232	121	1449	1385
d1, Uniform Delay [s]		36.69	36.58	36.58	3.36	9.22	11.24	43.03	2.61	2.62
k, delay calibration		0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.17	0.02	0.03	0.00	12.65	43.16	1.70	0.01	0.01
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.02	0.00	0.00	0.00	0.94	1.06	0.35	0.04	0.04
d, Delay for Lane Group [s/veh]		36.85	36.61	36.62	3.37	21.87	54.40	44.73	2.63	2.63
Lane Group LOS		D	D	D	A	C	F	D	A	A
Critical Lane Group		Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]		0.14	0.02	0.02	0.00	22.19	33.71	1.07	0.22	0.22
50th-Percentile Queue Length [ft/ln]		3.42	0.57	0.57	0.11	554.85	842.76	26.75	5.61	5.54
95th-Percentile Queue Length [veh/ln]		0.25	0.04	0.04	0.01	29.92	45.60	1.93	0.40	0.40
95th-Percentile Queue Length [ft/ln]		6.16	1.02	1.03	0.20	748.00	1139.95	48.15	10.10	9.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	36.85	36.61	36.62	3.37	21.87	54.40	44.73	2.63	2.63
Movement LOS				D	D	D	A	C	F	D	A	A
d_A, Approach Delay [s/veh]	0.00			36.79			37.81			13.41		
Approach LOS	A			D			D			B		
d_I, Intersection Delay [s/veh]	36.40											
Intersection LOS	D											
Intersection V/C	0.938											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	79.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	2.21	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.028	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	260	1580	1580
d_b, Bicycle Delay [s]	50.00	37.85	2.21	2.21
I_b,int, Bicycle LOS Score for Intersection	4.132	1.573	5.955	1.695
Bicycle LOS	D	A	F	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 15: Washington Street and I-10 EB On-Off Ramps

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.356

Intersection Setup

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	0	1	0	2	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	161.00	100.00	100.00	210.00	100.00	210.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			No			Yes		

Volumes

Name	Washington Street			Washington Street			I-10 EB Off-ramp			I-10 EB On-ramp		
Base Volume Input [veh/h]	0	174	45	27	113	0	49	4	188	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	1	487	326	0	0	0	3	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	209	49	516	446	0	52	4	203	0	0	0
Peak Hour Factor	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	14	152	131	0	15	1	60	0	0	0
Total Analysis Volume [veh/h]	0	246	58	607	525	0	61	5	239	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	22	0	33	55	0	0	65	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	13	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	72	72	24	99	13	13	13	
g / C, Green / Cycle	0.60	0.60	0.20	0.83	0.11	0.11	0.11	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.06	0.18	0.10	0.02	0.02	0.08	
s, saturation flow rate [veh/h]	3560	1698	3459	5094	1781	1794	2813	
c, Capacity [veh/h]	2126	1014	681	4214	189	190	298	
d1, Uniform Delay [s]	10.32	10.35	46.91	1.99	48.83	48.83	52.37	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.09	0.20	4.32	0.06	0.43	0.43	4.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.10	0.10	0.89	0.12	0.17	0.17	0.80	
d, Delay for Lane Group [s/veh]	10.41	10.55	51.23	2.06	49.26	49.26	57.36	
Lane Group LOS	B	B	D	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	1.16	1.19	9.20	0.58	0.92	0.93	3.72	
50th-Percentile Queue Length [ft/ln]	28.99	29.80	229.92	14.59	23.11	23.26	93.01	
95th-Percentile Queue Length [veh/ln]	2.09	2.15	14.17	1.05	1.66	1.67	6.70	
95th-Percentile Queue Length [ft/ln]	52.17	53.63	354.26	26.27	41.61	41.86	167.41	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	10.44	10.55	51.23	2.06	0.00	49.26	49.26	57.36	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	E			
d_A, Approach Delay [s/veh]	10.46			28.42			55.60			0.00		
Approach LOS	B			C			E			A		
d_I, Intersection Delay [s/veh]	30.05											
Intersection LOS	C											
Intersection V/C	0.356											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.057
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	850	1017	0
d_b, Bicycle Delay [s]	43.35	19.84	14.50	60.00
I_b,int, Bicycle LOS Score for Intersection	1.727	2.182	2.063	4.132
Bicycle LOS	A	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix M
Pre-Event Hour Concert Sellout EAPC Analysis
Driveways

Stop-Controlled Analysis
Signalized Analysis

Stop-Controlled Analysis

Intersection Level Of Service Report
Intersection 2: Driveway A2 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	1,771.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.666

Intersection Setup

Name	Driveway A2		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A2		Varner Road		Varner Road	
Base Volume Input [veh/h]	45	121	453	992	488	169
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	121	453	992	488	169
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	33	123	270	133	46
Total Analysis Volume [veh/h]	49	132	492	1078	530	184
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	3.67	0.24	0.92	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	1771.16	13.68	48.85	0.00	0.00	0.00
Movement LOS	F	B	E	A	A	A
95th-Percentile Queue Length [veh/ln]	7.06	0.94	11.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	176.45	23.49	276.97	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	489.46		15.31		0.00	
Approach LOS	F		C		A	
d_I, Intersection Delay [s/veh]	45.69					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Driveway A3 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	153.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.236

Intersection Setup

Name	Driveway A3		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A3		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	490	547	657	183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	490	547	657	183
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	133	149	179	50
Total Analysis Volume [veh/h]	0	0	533	595	714	199
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.24	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.00	12.64	153.03	0.00	0.00	0.00
Movement LOS	F	B	F	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	21.88	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	546.95	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	5006.32		72.31		0.00	
Approach LOS	F		F		A	
d_I, Intersection Delay [s/veh]	39.96					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 4: Drivway A4 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	108.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.092

Intersection Setup

Name	Driveway A4		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A4		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	367	180	840	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	367	180	840	137
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	100	49	228	37
Total Analysis Volume [veh/h]	0	0	399	196	913	149
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.09	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.00	13.53	108.24	0.00	0.00	0.00
Movement LOS	F	B	F	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	14.52	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	362.97	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	5006.77		72.59		0.00	
Approach LOS	F		F		A	
d_I, Intersection Delay [s/veh]	26.06					
Intersection LOS	F					

Signalized Analysis

Intersection Level Of Service Report

Intersection 1: Driveway A1 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	5.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Driveway A1		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A1		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	338	1445	482	126
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	338	1445	482	126
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	92	393	131	34
Total Analysis Volume [veh/h]	0	0	367	1571	524	137
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	9	0	32	51	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	0	9	52	39	39
g / C, Green / Cycle	0.00	0.00	0.15	0.87	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.11	0.31	0.10	0.09
s, saturation flow rate [veh/h]	1781	1589	3459	5094	5094	1589
c, Capacity [veh/h]	3	3	527	4407	3292	1027
d1, Uniform Delay [s]	0.00	0.00	24.18	0.79	4.20	4.12
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	1.67	0.23	0.10	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.70	0.36	0.16	0.13
d, Delay for Lane Group [s/veh]	0.00	0.00	25.86	1.02	4.30	4.39
Lane Group LOS	A	A	C	A	A	A
Critical Lane Group	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.00	2.44	0.09	0.61	0.53
50th-Percentile Queue Length [ft/ln]	0.00	0.00	60.94	2.31	15.36	13.14
95th-Percentile Queue Length [veh/ln]	0.00	0.00	4.39	0.17	1.11	0.95
95th-Percentile Queue Length [ft/ln]	0.00	0.00	109.68	4.15	27.65	23.66

Movement, Approach, & Intersection Results

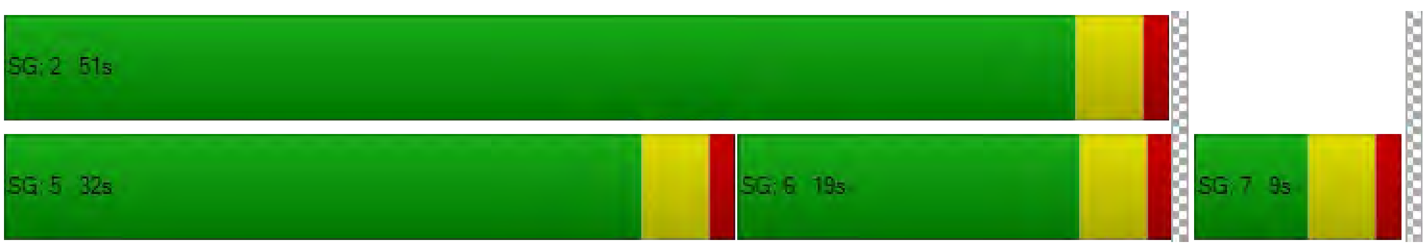
d_M, Delay for Movement [s/veh]	0.00	0.00	25.86	1.02	4.30	4.39
Movement LOS	A	A	C	A	A	A
d_A, Approach Delay [s/veh]	0.00		5.72		4.32	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.36					
Intersection LOS	A					
Intersection V/C	0.385					

Other Modes

g_Walk,mi, Effective Walk Time [s]	15.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.88	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.225	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.198	4.496
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Driveway A2 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Driveway A2		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A2		Varner Road		Varner Road	
Base Volume Input [veh/h]	45	121	453	992	488	169
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	121	453	992	488	169
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	33	123	270	133	46
Total Analysis Volume [veh/h]	49	132	492	1078	530	184
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	20	0	21	40	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	17	45	24	24
g / C, Green / Cycle	0.11	0.11	0.28	0.75	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.03	0.08	0.28	0.21	0.13	0.14
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1645
c, Capacity [veh/h]	204	182	505	3833	1434	663
d1, Uniform Delay [s]	24.25	25.72	21.34	2.34	12.39	12.55
k, delay calibration	0.11	0.11	0.12	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.60	5.40	14.77	0.18	0.62	1.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.73	0.97	0.28	0.33	0.36
d, Delay for Lane Group [s/veh]	24.86	31.12	36.11	2.52	13.01	14.07
Lane Group LOS	C	C	D	A	B	B
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.63	1.99	8.24	0.63	2.07	2.25
50th-Percentile Queue Length [ft/ln]	15.85	49.69	206.00	15.69	51.69	56.18
95th-Percentile Queue Length [veh/ln]	1.14	3.58	12.95	1.13	3.72	4.04
95th-Percentile Queue Length [ft/ln]	28.54	89.44	323.70	28.23	93.03	101.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.86	31.12	36.11	2.52	13.12	14.07
Movement LOS	C	C	D	A	B	B
d_A, Approach Delay [s/veh]	29.43		13.05		13.36	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	14.34					
Intersection LOS	B					
Intersection V/C	0.630					

Other Modes

g_Walk,mi, Effective Walk Time [s]	15.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.88	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.189	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.996	4.525
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Driveway A3 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name	Driveway A3		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A3		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	490	547	657	183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	490	547	657	183
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	133	149	179	50
Total Analysis Volume [veh/h]	0	0	533	595	714	199
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	9	0	32	51	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	0	20	52	28	28
g / C, Green / Cycle	0.00	0.00	0.34	0.87	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.30	0.12	0.17	0.18
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1677
c, Capacity [veh/h]	3	3	599	4407	1645	775
d1, Uniform Delay [s]	0.00	0.00	18.90	0.62	10.50	10.64
k, delay calibration	0.11	0.11	0.16	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	6.68	0.06	0.64	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.89	0.14	0.37	0.39
d, Delay for Lane Group [s/veh]	0.00	0.00	25.58	0.68	11.14	12.13
Lane Group LOS	A	A	C	A	B	B
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	0.00	7.35	0.03	2.37	2.58
50th-Percentile Queue Length [ft/ln]	0.00	0.00	183.81	0.65	59.35	64.45
95th-Percentile Queue Length [veh/ln]	0.00	0.00	11.80	0.05	4.27	4.64
95th-Percentile Queue Length [ft/ln]	0.00	0.00	294.98	1.17	106.83	116.01

Movement, Approach, & Intersection Results

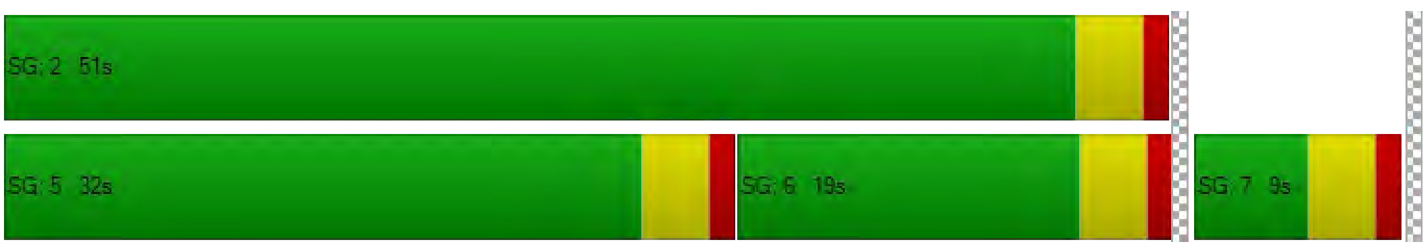
d_M, Delay for Movement [s/veh]	0.00	0.00	25.58	0.68	11.29	12.13
Movement LOS	A	A	C	A	B	B
d_A, Approach Delay [s/veh]	0.00		12.45		11.47	
Approach LOS	A		B		B	
d_I, Intersection Delay [s/veh]	12.01					
Intersection LOS	B					
Intersection V/C	0.601					

Other Modes

g_Walk,mi, Effective Walk Time [s]	15.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.88	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.149	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.753	4.635
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Drivway A4 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	Driveway A4		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A4		Varner Road		Varner Road	
Base Volume Input [veh/h]	0	0	367	180	840	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	367	180	840	137
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	100	49	228	37
Total Analysis Volume [veh/h]	0	0	399	196	913	149
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	9	0	32	51	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	0	16	52	32	32
g / C, Green / Cycle	0.00	0.00	0.26	0.87	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.22	0.04	0.20	0.20
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1741
c, Capacity [veh/h]	3	3	467	4407	1909	933
d1, Uniform Delay [s]	0.00	0.00	21.09	0.57	8.08	8.12
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.00	4.55	0.02	0.55	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.00	0.85	0.04	0.37	0.38
d, Delay for Lane Group [s/veh]	0.00	0.00	25.64	0.59	8.63	9.30
Lane Group LOS	A	A	C	A	A	A
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	0.00	5.45	0.01	2.28	2.45
50th-Percentile Queue Length [ft/ln]	0.00	0.00	136.13	0.19	57.03	61.26
95th-Percentile Queue Length [veh/ln]	0.00	0.00	9.27	0.01	4.11	4.41
95th-Percentile Queue Length [ft/ln]	0.00	0.00	231.80	0.35	102.65	110.27

Movement, Approach, & Intersection Results

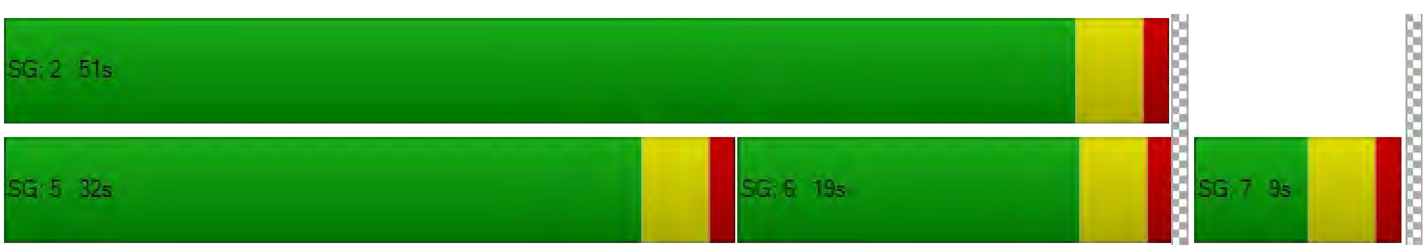
d_M, Delay for Movement [s/veh]	0.00	0.00	25.64	0.59	8.78	9.30
Movement LOS	A	A	C	A	A	A
d_A, Approach Delay [s/veh]	0.00		17.39		8.85	
Approach LOS	A		B		A	
d_I, Intersection Delay [s/veh]	11.92					
Intersection LOS	B					
Intersection V/C	0.534					

Other Modes

g_Walk,mi, Effective Walk Time [s]	15.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.88	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.089	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.460	4.717
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix N

Post-Event Hour Concert Sellout EAPC Analysis

Driveways

Stop-Controlled Analysis

Signalized Analysis

Signal Warrant Analysis

Stop-Controlled Analysis

Intersection Level Of Service Report
Intersection 2: Driveway A2 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	647.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.366

Intersection Setup

Name	Driveway A2		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A2		Varner Road		Varner Road	
Base Volume Input [veh/h]	283	758	0	233	1213	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	283	758	0	233	1213	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	77	206	0	63	330	0
Total Analysis Volume [veh/h]	308	824	0	253	1318	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.71	2.37	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	387.01	647.41	18.14	0.00	0.00	0.00
Movement LOS	F	F	C	A	A	A
95th-Percentile Queue Length [veh/ln]	21.39	64.27	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	534.67	1606.82	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	576.56		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	241.46					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Driveway A3 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	130.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.203

Intersection Setup

Name	Driveway A3		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A3		Varner Road		Varner Road	
Base Volume Input [veh/h]	244	652	0	516	561	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	244	652	0	516	561	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	177	0	140	152	0
Total Analysis Volume [veh/h]	265	709	0	561	610	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	Yes					
Number of Storage Spaces in Median	2		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.67	1.20	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	30.99	130.17	10.99	0.00	0.00	0.00
Movement LOS	D	F	B	A	A	A
95th-Percentile Queue Length [veh/ln]	4.76	25.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	118.99	635.26	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	103.18		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	46.85					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 4: Drivway A4 and Varner Road

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name	Driveway A4		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A4		Varner Road		Varner Road	
Base Volume Input [veh/h]	183	489	0	760	72	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	489	0	760	72	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	133	0	207	20	0
Total Analysis Volume [veh/h]	199	532	0	826	78	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.61	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	13.76	15.48	8.39	0.00	0.00	0.00
Movement LOS	B	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.42	4.31	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	35.46	107.65	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.01		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	6.71					
Intersection LOS	C					

Signalized Analysis

Intersection Level Of Service Report
Intersection 1: Driveway A1 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name	Driveway A1		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A1		Varner Road		Varner Road	
Base Volume Input [veh/h]	108	289	155	125	1913	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	289	155	125	1913	58
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	79	42	34	520	16
Total Analysis Volume [veh/h]	117	314	168	136	2079	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	22	0	9	38	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	5	38	29	29
g / C, Green / Cycle	0.23	0.23	0.08	0.63	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.05	0.03	0.41	0.04
s, saturation flow rate [veh/h]	1781	1589	3459	5094	5094	1589
c, Capacity [veh/h]	416	371	277	3227	2481	774
d1, Uniform Delay [s]	18.92	22.03	26.76	4.15	13.37	8.24
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	5.35	2.15	0.02	3.57	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.85	0.61	0.04	0.84	0.08
d, Delay for Lane Group [s/veh]	19.28	27.37	28.91	4.18	16.95	8.45
Lane Group LOS	B	C	C	A	B	A
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.28	4.43	1.18	0.16	7.44	0.42
50th-Percentile Queue Length [ft/ln]	32.12	110.85	29.62	3.93	185.98	10.38
95th-Percentile Queue Length [veh/ln]	2.31	7.89	2.13	0.28	11.91	0.75
95th-Percentile Queue Length [ft/ln]	57.82	197.19	53.32	7.08	297.80	18.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.28	27.37	28.91	4.18	16.95	8.45
Movement LOS	B	C	C	A	B	A
d_A, Approach Delay [s/veh]	25.18		17.85		16.70	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	18.09					
Intersection LOS	B					
Intersection V/C	0.818					

Other Modes

g_Walk,mi, Effective Walk Time [s]	25.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	10.21	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.243	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.300	5.311
Bicycle LOS	D	E	F

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Driveway A2 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Driveway A2		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A2		Varner Road		Varner Road	
Base Volume Input [veh/h]	283	758	0	233	1213	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	283	758	0	233	1213	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	77	206	0	63	330	0
Total Analysis Volume [veh/h]	308	824	0	253	1318	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	61	0	9	29	20	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	49	0	33	29	29
g / C, Green / Cycle	0.55	0.55	0.00	0.37	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.17	0.52	0.00	0.05	0.25	0.23
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1870
c, Capacity [veh/h]	972	868	2	1861	1138	598
d1, Uniform Delay [s]	11.23	19.28	0.00	19.08	27.67	27.24
k, delay calibration	0.11	0.34	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	15.61	0.00	0.15	5.11	7.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.95	0.00	0.14	0.77	0.74
d, Delay for Lane Group [s/veh]	11.41	34.89	0.00	19.24	32.78	35.09
Lane Group LOS	B	C	A	B	C	D
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.21	18.26	0.00	1.18	9.04	9.41
50th-Percentile Queue Length [ft/ln]	80.16	456.57	0.00	29.46	225.96	235.14
95th-Percentile Queue Length [veh/ln]	5.77	25.27	0.00	2.12	13.97	14.44
95th-Percentile Queue Length [ft/ln]	144.29	631.78	0.00	53.03	349.22	360.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.41	34.89	0.00	19.24	33.55	35.09
Movement LOS	B	C	A	B	C	D
d_A, Approach Delay [s/veh]	28.50		19.24		33.55	
Approach LOS	C		B		C	
d_I, Intersection Delay [s/veh]	30.10					
Intersection LOS	C					
Intersection V/C	0.883					

Other Modes

g_Walk,mi, Effective Walk Time [s]	16.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	30.42	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.302	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.272	4.857
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Driveway A3 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	Driveway A3		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A3		Varner Road		Varner Road	
Base Volume Input [veh/h]	244	652	0	516	561	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	244	652	0	516	561	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	177	0	140	152	0
Total Analysis Volume [veh/h]	265	709	0	561	610	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	47	0	9	38	29	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	20	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40	0	37	33	33
g / C, Green / Cycle	0.47	0.47	0.00	0.44	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.15	0.45	0.00	0.11	0.11	0.11
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1870
c, Capacity [veh/h]	836	746	2	2223	1381	726
d1, Uniform Delay [s]	14.06	21.60	0.00	15.18	17.99	17.87
k, delay calibration	0.11	0.38	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	18.81	0.00	0.27	0.54	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.95	0.00	0.25	0.29	0.28
d, Delay for Lane Group [s/veh]	14.27	40.41	0.00	15.46	18.53	18.84
Lane Group LOS	B	D	A	B	B	B
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.05	16.25	0.00	2.25	2.76	2.83
50th-Percentile Queue Length [ft/ln]	76.35	406.24	0.00	56.17	68.90	70.74
95th-Percentile Queue Length [veh/ln]	5.50	22.86	0.00	4.04	4.96	5.09
95th-Percentile Queue Length [ft/ln]	137.44	571.51	0.00	101.11	124.02	127.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.27	40.41	0.00	15.46	18.63	18.84
Movement LOS	B	D	A	B	B	B
d_A, Approach Delay [s/veh]	33.30		15.46		18.63	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	24.46					
Intersection LOS	C					
Intersection V/C	0.652					

Other Modes

g_Walk,mi, Effective Walk Time [s]	25.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.18	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.236	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	42.50	42.50	42.50
I_b,int, Bicycle LOS Score for Intersection	4.132	4.441	4.468
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Drivway A4 and Varner Road

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name	Driveway A4		Varner Road		Varner Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway A4		Varner Road		Varner Road	
Base Volume Input [veh/h]	183	489	0	760	72	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	489	0	760	72	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	133	0	207	20	0
Total Analysis Volume [veh/h]	199	532	0	826	78	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	7	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	32	0	9	28	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	0	0
Pedestrian Clearance [s]	10	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	0	30	26	26
g / C, Green / Cycle	0.37	0.37	0.00	0.49	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.11	0.33	0.00	0.16	0.01	0.01
s, saturation flow rate [veh/h]	1781	1589	1781	5094	3560	1870
c, Capacity [veh/h]	667	595	3	2510	1511	793
d1, Uniform Delay [s]	13.26	17.70	0.00	9.24	10.12	10.11
k, delay calibration	0.11	0.21	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	9.01	0.00	0.35	0.04	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.89	0.00	0.33	0.03	0.03
d, Delay for Lane Group [s/veh]	13.51	26.71	0.00	9.59	10.16	10.19
Lane Group LOS	B	C	A	A	B	B
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.74	7.54	0.00	1.91	0.19	0.19
50th-Percentile Queue Length [ft/ln]	43.56	188.58	0.00	47.81	4.64	4.84
95th-Percentile Queue Length [veh/ln]	3.14	12.05	0.00	3.44	0.33	0.35
95th-Percentile Queue Length [ft/ln]	78.40	301.18	0.00	86.06	8.35	8.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.51	26.71	0.00	9.59	10.17	10.19
Movement LOS	B	C	A	A	B	B
d_A, Approach Delay [s/veh]	23.11		9.59		10.17	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	15.66					
Intersection LOS	B					
Intersection V/C	0.621					

Other Modes

g_Walk,mi, Effective Walk Time [s]	15.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.88	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.148	0.000	0.000
Crosswalk LOS	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.587	4.175
Bicycle LOS	D	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Signal Warrant Analysis

Warrant 3: Peak Hour
1: Driveway A1 and Varner Rd

Intersection Informatior

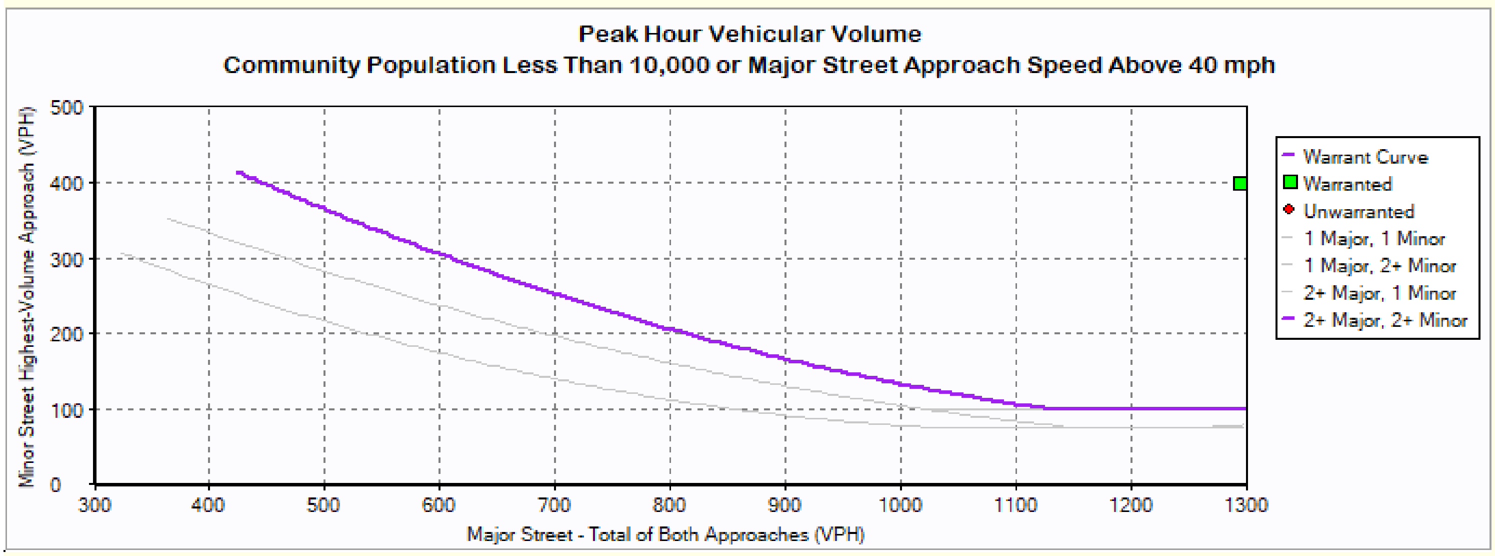
	Major Street	Minor Street
Street Name	Varner Rd	Driveway A1
Direction	EB/WB	SB
Number of Lane:	4	2
Approch Speed	55	30

Warrant 3 Met? Yes

Details

Low Population?	No		
Condition A Met?	No	**Condition B Met?**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

1: Driveway A1 and Varner Rd

Hour	**Major Street** Total All Approaches (vph)	**Minor Street** Highest Volume Approach (vph)
23:00	2,251	397

Warrant 3: Peak Hour

1: Driveway A2 and Varner Rd

Intersection Informatior

	Major Street	**Minor Street**
Street Name	Varner Rd	Driveway A2
Direction	EB/WB	SB
Number of Lane:	3	2
Approch Speed	55	30

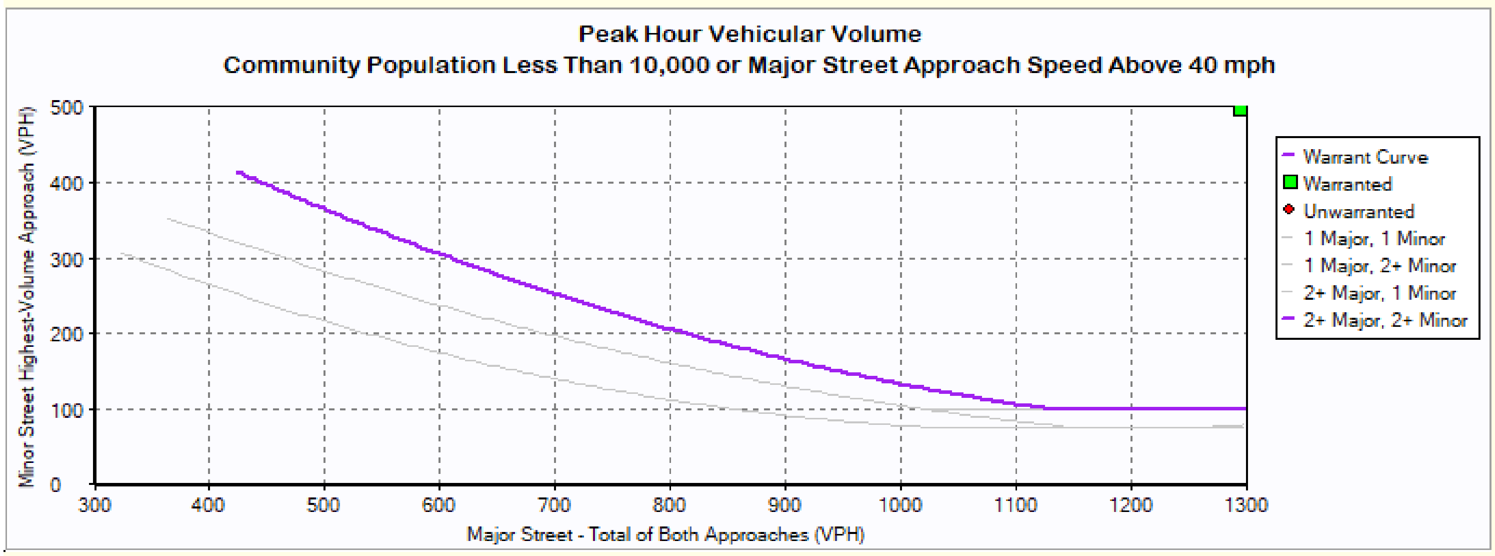
Warrant 3 Met? Yes

Details

Low Population? No

Condition A Met'	No	**Condition B Met'**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

1: Driveway A2 and Varner Rd

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
23:00	1,446	1,041

Warrant 3: Peak Hour

1: Driveway A3 and Varner Rd

Intersection Informatior

	Major Street	Minor Street
Street Name	Varner Rd	Driveway A2
Direction	EB/WB	SB
Number of Lane:	3	2
Approch Speed	55	30

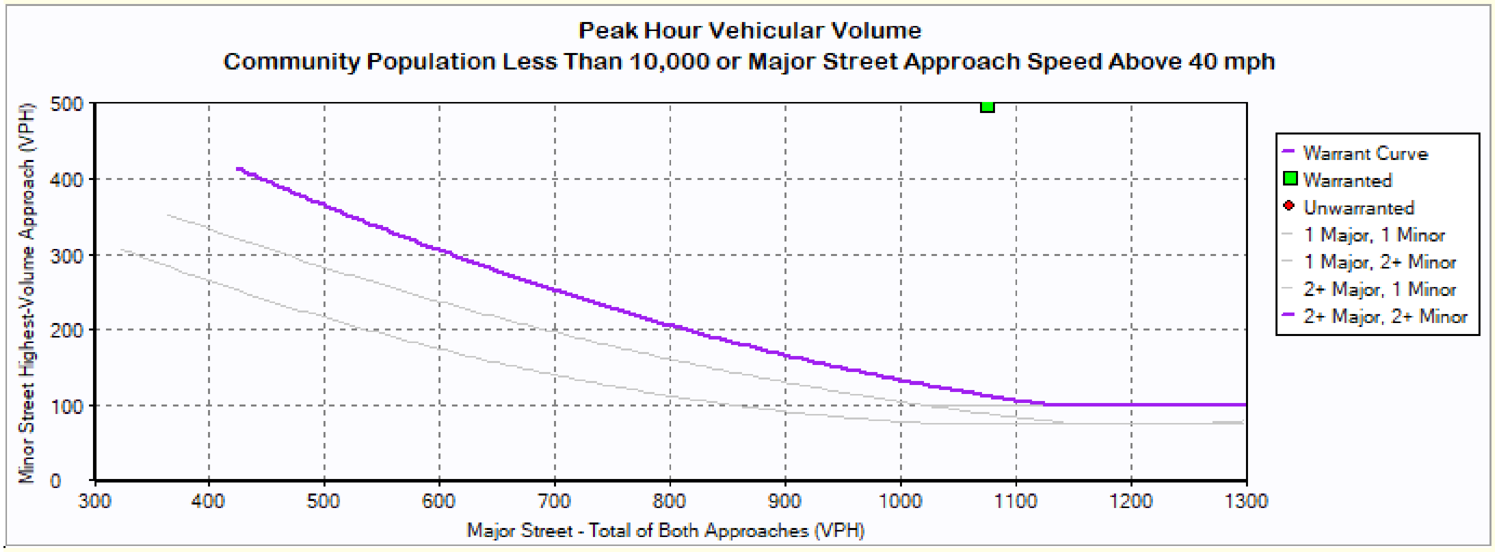
Warrant 3 Met? Yes

Details

Low Population? No

Condition A Met'	No	**Condition B Met'**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

1: Driveway A3 and Varner Rd

Hour	**Major Street** Total All Approaches (vph)	**Minor Street** Highest Volume Approach (vph)
23:00	1,077	896

Warrant 3: Peak Hour

1: Driveway A4 and Varner Rd

Intersection Informatior

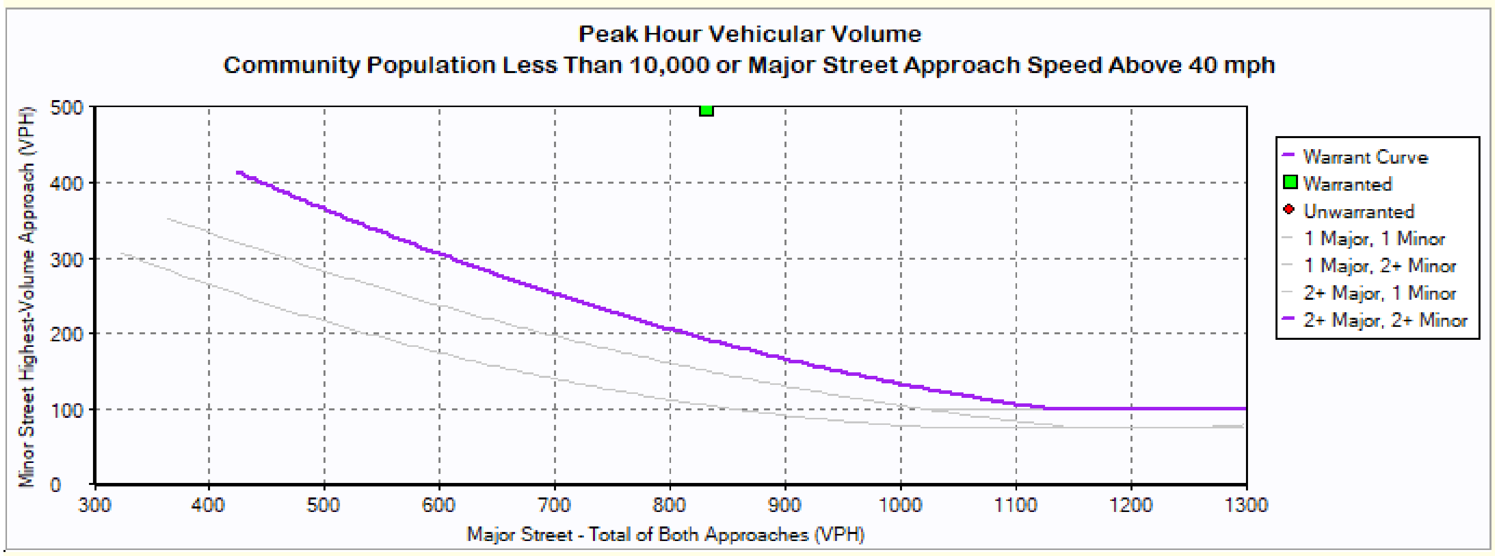
	Major Street	Minor Street
Street Name	Varner Rd	Driveway A2
Direction	EB/WB	SB
Number of Lane:	3	2
Approch Speed	55	30

Warrant 3 Met? Yes

Details

Low Population?	No		
Condition A Met?	No	**Condition B Met?**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

1: Driveway A4 and Varner Rd

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
23:00	832	672

Appendix O

Freeway Analysis
Existing Conditions (PM Peak Hour)

Freeway Segment Analysis
Freeway Merge/Diverge Analysis
Freeway Off-Ramp Queuing Analysis

Freeway Segment Analysis

Existing Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - West of Cook Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(1) I-10 WB West of Cook Street\(1) I-10 WB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2531	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
963	70.0	13.8	2400	0.40	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - West of Cook Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(2) I-10 EB West of Cook Street\(2) I-10 EB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2982	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1134	70.0	16.2	2400	0.47	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Cook Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(3) I-10 WB East of Cook Street\(3) I-10 WB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2353	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
887	70.0	12.7	2400	0.37	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East Cook Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(4) I-10 EB East of Cook Street\(4) I-10 EB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3221	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1214	70.0	17.3	2400	0.51	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Washington Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(5) I-10 WB East of Washington Street\(5) I-10 WB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3394	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1291	69.9	18.5	2400	0.54	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East of Washington Street	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Freeway Segments\(6) I-10 EB East of Washington Street\(6) I-10 EB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3118	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1186	70.0	16.9	2400	0.49	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB On-Ramp at Cook Street (Merge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	12/3/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	west of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing (Weekday 5-6 PM)\Merge-Diverge Areas\(1) I-10 WB On-Ramp at Cook Street (Merge)\(1) I-10 WB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
4	2475	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
53	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	500	N/A	500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2825	59	2883	0.334	1130

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.30	61.9	11.6
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
65.8	11.0	B

Freeway Merge/Diverge Analysis
Existing Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	12/28/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing - (Weekday 5-6 PM)\Merge-Diverge Areas\(2) I-10 EB Off-Ramp at Cook Street (Diverge) V2\(2) I-10 EB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2982	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
759	5.00	0.00	0.952	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
2	0	1500	1500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3403	866	2537	0.450	2008

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.47	57.7	8.0
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.8	17.8	A

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing (Weekday 5-6 PM)\Merge-Diverge Areas V2\(3) I-10 WB Off-Ramp at Cook Street (Diverge)\(3) I-10 WB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2353	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
509	2.00	0.00	0.980	30
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2660	564	2096	0.668	1963

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.37	54.8	21.1
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
59.2	15.0	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Cook Street (Merge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020 11:47:12 AM	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Merge-Diverge Areas\(4) I-10 EB On-Ramp at Cook Street (Merge)\(4) I-10 EB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2380	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
841	1.00	0.00	0.990	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2716	923	3640	0.586	1591

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.51	60.4	22.8
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.5	19.4	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Washington Street (Diverge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing (Weekday 5-6 PM)\Merge-Diverge Areas V2\(5) I-10 WB Off-Ramp at Washington Street (Diverge)\(5) I-10 WB Off-Ramp at Wahington Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3394	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
630	3.00	0.00	0.971	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

3874	705	3168	0.631	2704

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.54	58.1	27.5
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.5	20.6	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Washington Street (Merge)	**Analysis Period**	Existing (Weekday 5-6 PM)
Analysis Date	11/22/2020 11:47:12 AM	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Existing\Merge-Diverge Areas\(6) I-10 EB On-Ramp at Washington Street (Merge)\(6) I-10 EB On-Ramp at Washington Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2403	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
715	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2743	793	3535	0.586	1607

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.49	60.6	21.9

Avg. Speed, Overall (mi/h)	Density, Overall (pc/mi/ln)	LOS
62.7	18.8	C

Freeway Off-Ramp Queuing Analysis
Existing Conditions (PM Peak Hour)

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	82	0	0	66	14	0	0	0	129	1	17
Total Analysis Volume [veh/h]	0	329	0	0	262	57	0	0	0	515	3	67
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	32	32	32		20	20
g / C, Green / Cycle	0.53	0.53	0.53		0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.09	0.06	0.06		0.29	0.04
s, saturation flow rate [veh/h]	3560	3560	1708		1781	1589
c, Capacity [veh/h]	1898	1898	911		595	531
d1, Uniform Delay [s]	7.22	6.97	6.99		18.81	13.93
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.20	0.12	0.26		4.13	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.11	0.12		0.87	0.13
d, Delay for Lane Group [s/veh]	7.42	7.09	7.25		22.94	14.04
Lane Group LOS	A	A	A		C	B
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	0.94	0.59	0.62		6.70	0.59
50th-Percentile Queue Length [ft/ln]	23.50	14.63	15.53		167.53	14.80
95th-Percentile Queue Length [veh/ln]	1.69	1.05	1.12		10.95	1.07
95th-Percentile Queue Length [ft/ln]	42.30	26.34	27.96		273.66	26.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	7.42	0.00	0.00	7.12	7.25	0.00	0.00	0.00	22.94	22.94	14.04
Movement LOS		A			A	A				C	C	B
d_A, Approach Delay [s/veh]		7.42			7.14			0.00			21.92	
Approach LOS		A			A			A			C	
d_I, Intersection Delay [s/veh]						14.23						
Intersection LOS						B						
Intersection V/C						0.479						

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.469	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	1.831	1.735	4.132	2.525
Bicycle LOS	A	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	239	219	14	175	0	16	0	195	0	0	0
Total Analysis Volume [veh/h]	0	956	877	57	701	0	62	1	780	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	4	55	22	22	22	
g / C, Green / Cycle	0.56	0.56	0.04	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.55	0.03	0.14	0.03	0.25	0.25	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1977	882	80	3296	461	412	412	
d1, Uniform Delay [s]	11.51	18.78	40.09	6.15	24.20	30.96	30.96	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.23	0.23	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.85	28.86	11.22	0.15	0.13	19.76	19.80	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.48	0.99	0.71	0.21	0.13	0.95	0.95	
d, Delay for Lane Group [s/veh]	12.36	47.64	51.31	6.29	24.33	50.72	50.76	
Lane Group LOS	B	D	D	A	C	D	D	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	5.20	21.96	1.41	1.52	0.96	9.83	9.83	
50th-Percentile Queue Length [ft/ln]	130.12	548.95	35.21	38.07	23.90	245.75	245.81	
95th-Percentile Queue Length [veh/ln]	8.95	29.64	2.53	2.74	1.72	14.97	14.97	
95th-Percentile Queue Length [ft/ln]	223.65	741.08	63.37	68.52	43.02	374.29	374.37	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.36	47.64	51.31	6.29	0.00	24.33	50.72	50.74	0.00	0.00	0.00
Movement LOS		B	D	D	A		C	D	D			
d_A, Approach Delay [s/veh]		29.24			9.68			48.80			0.00	
Approach LOS		C			A			D			A	
d_I, Intersection Delay [s/veh]	29.72											
Intersection LOS	C											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.138	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.568	1.977	2.951	4.132
Bicycle LOS	B	A	C	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	79	876	381	174	714
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	25	281	122	56	229
Total Analysis Volume [veh/h]	706	101	1123	488	223	915
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	26	26	6	36
g / C, Green / Cycle	0.26	0.26	0.44	0.44	0.10	0.60
(v / s)_i Volume / Saturation Flow Rate	0.20	0.06	0.22	0.31	0.06	0.26
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	909	418	2224	694	350	2151
d1, Uniform Delay [s]	20.53	17.45	12.25	13.78	25.98	6.35
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.30	0.82	5.89	1.94	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.24	0.51	0.70	0.64	0.43
d, Delay for Lane Group [s/veh]	22.00	17.75	13.08	19.67	27.92	6.97
Lane Group LOS	C	B	B	B	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.37	1.05	3.29	5.71	1.54	2.47
50th-Percentile Queue Length [ft/ln]	109.19	26.29	82.22	142.74	38.50	61.77
95th-Percentile Queue Length [veh/ln]	7.79	1.89	5.92	9.63	2.77	4.45
95th-Percentile Queue Length [ft/ln]	194.87	47.32	147.99	240.71	69.31	111.19

Movement, Approach, & Intersection Results

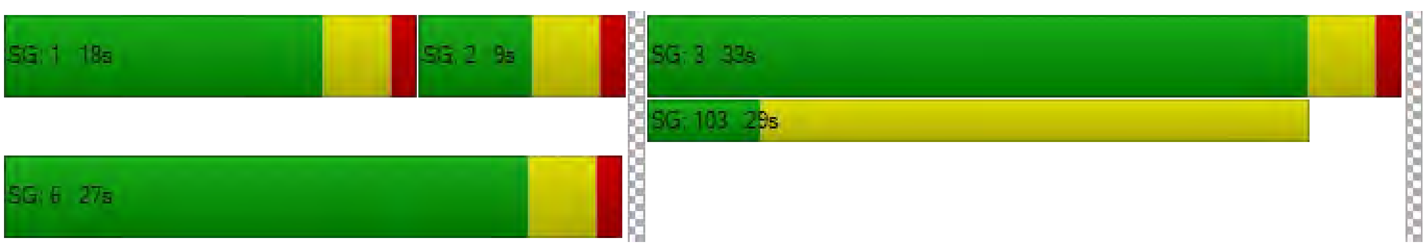
d_M, Delay for Movement [s/veh]	22.00	17.75	13.08	19.67	27.92	6.97
Movement LOS	C	B	B	B	C	A
d_A, Approach Delay [s/veh]	21.46		15.07		11.07	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	15.24					
Intersection LOS	B					
Intersection V/C	0.719					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.583	0.000	2.904
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.018	5.071
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix P

Freeway Analysis
EAP Conditions (PM Peak Hour)

Freeway Segment Analysis

Freeway Merge/Diverge Analysis

Freeway Off-Ramp Queuing Analysis

Freeway Segment Analysis
EAP Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - West of Cook Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(1) I-10 WB West of Cook Street\(1) I-10 WB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2703	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1028	70.0	14.7	2400	0.43	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - West of Cook Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(2) I-10 EB West of Cook Street\(2) I-10 EB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3425	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1303	69.9	18.6	2400	0.54	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Cook Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(3) I-10 WB East of Cook Street\(3) I-10 WB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2508	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
945	70.0	13.5	2400	0.39	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East Cook Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(4) I-10 EB East of Cook Street\(4) I-10 EB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3419	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	% Grade	Length (mi)	% TTs	% SUTs	Truck PCE	Heavy Vehicle Factor
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1288	69.9	18.4	2400	0.54	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Washington Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(5) I-10 WB East of Washington Street\(5) I-10 WB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3714	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1413	69.5	20.3	2400	0.59	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East of Washington Street	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Freeway Segments\(6) I-10 EB East of Washington Street\(6) I-10 EB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3315	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1261	70.0	18.0	2400	0.53	C

Freeway Merge/Diverge Analysis
EAP Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	west of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Merge-Diverge Areas\(1) I-10 WB On-Ramp at Cook Street (Merge)\(1) I-10 WB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
4	2630	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
73	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	500	N/A	500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3002	81	3083	0.332	1201

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.32	61.9	12.3
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
65.6	11.7	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/28/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\AHL - EAP (Weekday 5-6 PM)\Merge-Diverge Areas V2\(2) I-10 EB Off-Ramp at Cook Street (Diverge)\(2) I-10 EB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3425	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
1065	5.00	0.00	0.952	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
2	0	1500	1500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3909	1215	2693	0.450	2428

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.54	56.8	11.6
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.5	20.8	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Merge-Diverge Areas V2 \(3) I-10 WB Off-Ramp at Cook Street (Diverge)\(3) I-10 WB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2508	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
551	2.00	0.00	0.980	30
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2835	611	2224	0.661	2081

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.39	54.7	22.1
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
59.2	16.0	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Merge-Diverge Areas\(4) I-10 EB On-Ramp at Cook Street (Merge)\(4) I-10 EB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2526	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
893	1.00	0.00	0.990	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2883	980	3863	0.586	1689

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.54	60.2	24.0
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.3	20.7	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Washington Street (Diverge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Merge-Diverge Areas\(5) I-10 WB Off-Ramp at Washington Street (Diverge)\(5) I-10 WB Off-Ramp at Wahington Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3714	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
770	3.00	0.00	0.971	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
4239	862	3377	0.614	2937

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.59	57.7	29.5

Avg. Speed, Overall (mi/h)	Density, Overall (pc/mi/ln)	LOS
62.2	22.7	D

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Washington Street (Merge)	**Analysis Period**	EAP (Weekday 5-6 PM)
Analysis Date	12/4/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAP (Weekday 5-6 PM)\Merge-Diverge Areas\(6) I-10 EB On-Ramp at Washington Street (Merge)\(6) I-10 EB On-Ramp at Washington Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2551	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
764	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2911	847	3759	0.586	1706

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.52	60.4	23.1
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.5	20.1	C

Freeway Off-Ramp Queuing Analysis

EAP Conditions (PM Peak Hour)

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			No	

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	362	0	0	4	17	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	666	0	0	246	70	0	0	0	475	3	73
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	191	0	0	71	20	0	0	0	136	1	21
Total Analysis Volume [veh/h]	0	766	0	0	283	80	0	0	0	546	3	84
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	31	31	31		21	21
g / C, Green / Cycle	0.52	0.52	0.52		0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.22	0.07	0.07		0.31	0.05
s, saturation flow rate [veh/h]	3560	3560	1675		1781	1589
c, Capacity [veh/h]	1834	1834	863		627	559
d1, Uniform Delay [s]	9.01	7.58	7.62		18.25	13.33
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.70	0.15	0.34		4.08	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.42	0.13	0.14		0.88	0.15
d, Delay for Lane Group [s/veh]	9.71	7.73	7.96		22.33	13.46
Lane Group LOS	A	A	A		C	B
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	2.72	0.71	0.76		7.01	0.72
50th-Percentile Queue Length [ft/ln]	67.90	17.82	18.99		175.26	18.08
95th-Percentile Queue Length [veh/ln]	4.89	1.28	1.37		11.35	1.30
95th-Percentile Queue Length [ft/ln]	122.22	32.08	34.18		283.81	32.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	9.71	0.00	0.00	7.77	7.96	0.00	0.00	0.00	22.33	22.33	13.46
Movement LOS		A			A	A				C	C	B
d_A, Approach Delay [s/veh]	9.71			7.81			0.00			21.16		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	13.43											
Intersection LOS	B											
Intersection V/C	0.654											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.491	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	2.192	1.759	4.132	2.604
Bicycle LOS	B	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.025

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	102	0	1	4	0	260	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1015	837	55	674	0	319	1	745	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	282	233	15	187	0	89	0	207	0	0	0
Total Analysis Volume [veh/h]	0	1128	930	61	749	0	354	1	828	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	4	55	22	22	22	
g / C, Green / Cycle	0.55	0.55	0.05	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.32	0.59	0.03	0.15	0.20	0.26	0.26	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1972	880	82	3296	461	412	412	
d1, Uniform Delay [s]	12.40	18.98	40.07	6.21	29.15	31.52	31.52	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.26	0.26	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.21	46.40	12.30	0.16	3.26	33.55	33.66	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	1.06	0.74	0.23	0.77	1.01	1.01	
d, Delay for Lane Group [s/veh]	13.61	65.38	52.37	6.38	32.40	65.07	65.18	
Lane Group LOS	B	F	D	A	C	F	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	6.64	26.42	1.52	1.65	6.88	11.96	11.97	
50th-Percentile Queue Length [ft/ln]	165.99	660.41	38.07	41.13	171.92	299.07	299.28	
95th-Percentile Queue Length [veh/ln]	10.87	36.42	2.74	2.96	11.18	17.70	17.72	
95th-Percentile Queue Length [ft/ln]	271.63	910.42	68.52	74.04	279.44	442.56	442.91	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	13.61	65.38	52.37	6.38	0.00	32.40	65.07	65.12	0.00	0.00	0.00
Movement LOS		B	F	D	A		C	E	F			
d_A, Approach Delay [s/veh]		37.00			9.84			55.33			0.00	
Approach LOS		D			A			E			A	
d_I, Intersection Delay [s/veh]	36.92											
Intersection LOS	D											
Intersection V/C	1.025											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.249	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.692	2.005	3.512	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.810

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	101	0	1	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	686	84	931	404	185	782
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	220	27	298	129	59	251
Total Analysis Volume [veh/h]	879	108	1194	518	237	1003
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	23	23	6	33
g / C, Green / Cycle	0.31	0.31	0.38	0.38	0.10	0.55
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.23	0.33	0.07	0.28
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1090	501	1934	604	366	1965
d1, Uniform Delay [s]	18.92	15.14	15.12	17.17	25.83	8.41
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.21	1.49	14.68	1.94	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.22	0.62	0.86	0.65	0.51
d, Delay for Lane Group [s/veh]	20.38	15.35	16.61	31.86	27.76	9.36
Lane Group LOS	C	B	B	C	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.27	1.02	4.14	8.18	1.63	3.46
50th-Percentile Queue Length [ft/ln]	131.63	25.54	103.42	204.56	40.80	86.49
95th-Percentile Queue Length [veh/ln]	9.03	1.84	7.45	12.87	2.94	6.23
95th-Percentile Queue Length [ft/ln]	225.71	45.97	186.15	321.84	73.44	155.69

Movement, Approach, & Intersection Results

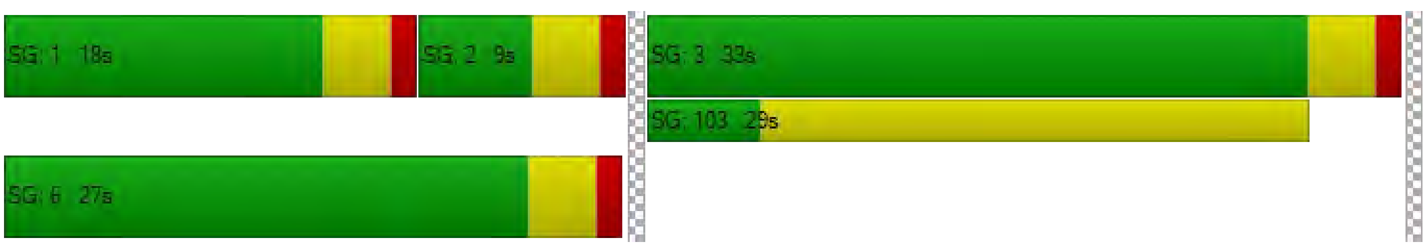
d_M, Delay for Movement [s/veh]	20.38	15.35	16.61	31.86	27.76	9.36
Movement LOS	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	19.83		21.22		12.88	
Approach LOS	B		C		B	
d_I, Intersection Delay [s/veh]	18.25					
Intersection LOS	B					
Intersection V/C	0.810					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.626	0.000	2.929
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.074	5.155
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix Q

Freeway Analysis
EAPC Conditions (PM Peak Hour)

Freeway Segment Analysis
Freeway Merge/Diverge Analysis
Freeway Off-Ramp Queuing Analysis

Freeway Segment Analysis
EAPC Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - West of Cook Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(1) I-10 WB West of Cook Street\(1) I-10 WB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2992	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1138	70.0	16.3	2400	0.47	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - West of Cook Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(2) I-10 EB West of Cook Street\(2) I-10 EB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3738	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1422	69.4	20.5	2400	0.59	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Cook Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(3) I-10 WB East of Cook Street\(3) I-10 WB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2891	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1089	70.0	15.6	2400	0.45	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East Cook Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(4) I-10 EB East of Cook Street\(4) I-10 EB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3709	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1398	69.5	20.1	2400	0.58	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Washington Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020 11:35:18 AM	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(5) I-10 WB East of Washington Street\(5) I-10 WB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	4093	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1557	68.5	22.7	2400	0.65	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East of Washington Street	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Freeway Segments\(6) I-10 EB East of Washington Street\(6) I-10 EB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3600	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1370	69.7	19.7	2400	0.57	C

Freeway Merge/Diverge Analysis
EAPC Conditions (PM Peak Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	west of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Merge-Diverge Areas\(1) I-10 WB On-Ramp at Cook Street (Merge)\(1) I-10 WB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
4	2919	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
73	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	500	N/A	500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3331	81	3412	0.208	1333

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.36	61.8	13.3
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
65.4	13.0	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/28/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\AHL - EAPC (Weekday 5-6 PM)\Merge-Diverge Areas V2\(2) I-10 EB Off-Ramp at Cook Street (Diverge) - V2\(2) I-10 EB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results
Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3939	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
1542	5.00	0.00	0.952	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
2	0	1500	1500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
4496	1760	2736	0.450	2991

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.62	55.4	16.5
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
60.7	24.7	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Merge-Diverge Areas V2 \(3) I-10 WB Off-Ramp at Cook Street (Diverge)\(3) I-10 WB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2891	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
778	2.00	0.00	0.980	30
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3268	863	2406	0.639	2399

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.45	54.0	24.9
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
58.6	18.6	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Merge-Diverge Areas\(4) I-10 EB On-Ramp at Cook Street (Merge)\(4) I-10 EB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2665	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
1044	1.00	0.00	0.990	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3042	1146	4188	0.586	1782

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.58	59.7	25.9
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
61.8	22.6	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Washington Street (Diverge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/16/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Merge-Diverge Areas V2 \(5) I-10 WB Off-Ramp at Washington Street (Diverge)\(5) I-10 WB Off-Ramp at Wahington Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	4093	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
772	3.00	0.00	0.971	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	0	N/A	0	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

4671	864	3807	0.603	3162

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.65	57.7	31.4
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.3	25.0	D

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Washington Street (Merge)	**Analysis Period**	EAPC (Weekday 5-6 PM)
Analysis Date	12/7/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\EAPC (Weekday 5-6 PM)\Merge-Diverge Areas\(6) I-10 EB On-Ramp at Washington Street (Merge)\(6) I-10 EB On-Ramp at Washington Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2834	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
766	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3234	849	4084	0.586	1895

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.57	60.1	24.6
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.2	21.9	C

Freeway Off-Ramp Queuing Analysis

EAPC Conditions (PM Peak Hour)

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.821

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	286	0	0	228	50	0	0	0	448	3	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	424	0	0	96	17	0	0	0	177	0	86
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	728	0	0	338	70	0	0	0	652	3	148
Peak Hour Factor	1.0000	0.8700	1.0000	1.0000	0.8700	0.8700	1.0000	1.0000	1.0000	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	209	0	0	97	20	0	0	0	187	1	43
Total Analysis Volume [veh/h]	0	837	0	0	389	80	0	0	0	749	3	170
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	9	0	0	9	0	0	0	0	0	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	24	24	24		28	28
g / C, Green / Cycle	0.40	0.40	0.40		0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.24	0.09	0.09		0.42	0.11
s, saturation flow rate [veh/h]	3560	3560	1715		1781	1589
c, Capacity [veh/h]	1419	1419	684		835	745
d1, Uniform Delay [s]	14.25	11.95	11.99		14.72	9.52
k, delay calibration	0.50	0.50	0.50		0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	1.81	0.36	0.78		4.38	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.22	0.23		0.90	0.23
d, Delay for Lane Group [s/veh]	16.05	12.30	12.77		19.10	9.68
Lane Group LOS	B	B	B		B	A
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	4.27	1.30	1.38		8.82	1.17
50th-Percentile Queue Length [ft/ln]	106.80	32.43	34.48		220.55	29.34
95th-Percentile Queue Length [veh/ln]	7.66	2.34	2.48		13.69	2.11
95th-Percentile Queue Length [ft/ln]	191.55	58.38	62.06		342.33	52.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.05	0.00	0.00	12.40	12.77	0.00	0.00	0.00	19.10	19.10	9.68
Movement LOS		B			B	B				B	B	A
d_A, Approach Delay [s/veh]	16.05			12.46			0.00			17.36		
Approach LOS	B			B			A			B		
d_I, Intersection Delay [s/veh]	15.84											
Intersection LOS	B											
Intersection V/C	0.821											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	5.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	25.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.491	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	0	1567
d_b, Bicycle Delay [s]	25.21	25.21	30.00	1.41
I_b,int, Bicycle LOS Score for Intersection	2.250	1.818	4.132	3.081
Bicycle LOS	B	A	D	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	64.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.200

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	860	789	51	631	0	56	1	702	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	259	121	45	229	0	260	0	111	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1172	958	99	899	0	319	1	856	0	0	0
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	326	266	28	250	0	89	0	238	0	0	0
Total Analysis Volume [veh/h]	0	1302	1064	110	999	0	354	1	951	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	9	59	0	0	26	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	46	46	5	55	22	22	22	
g / C, Green / Cycle	0.54	0.54	0.06	0.65	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.37	0.67	0.06	0.20	0.20	0.30	0.30	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1590	1589	
c, Capacity [veh/h]	1919	857	109	3295	462	412	412	
d1, Uniform Delay [s]	14.27	19.63	39.97	6.60	29.16	31.54	31.54	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.34	0.34	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.95	118.89	43.19	0.24	3.25	87.51	87.66	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.68	1.24	1.01	0.30	0.77	1.16	1.16	
d, Delay for Lane Group [s/veh]	16.22	138.52	83.16	6.84	32.41	119.04	119.20	
Lane Group LOS	B	F	F	A	C	F	F	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.72	43.12	3.54	2.33	6.88	18.15	18.16	
50th-Percentile Queue Length [ft/ln]	217.90	1077.95	88.53	58.33	171.97	453.77	454.06	
95th-Percentile Queue Length [veh/ln]	13.56	63.01	6.37	4.20	11.18	27.23	27.25	
95th-Percentile Queue Length [ft/ln]	338.94	1575.37	159.35	105.00	279.51	680.82	681.32	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.22	138.52	83.16	6.84	0.00	32.41	119.04	119.12	0.00	0.00	0.00
Movement LOS		B	F	F	A		C	F	F			
d_A, Approach Delay [s/veh]	71.22			14.41			95.62			0.00		
Approach LOS	E			B			F			A		
d_I, Intersection Delay [s/veh]	64.71											
Intersection LOS	E											
Intersection V/C	1.200											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	55.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	5.29	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.289	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1082	1294	518	0
d_b, Bicycle Delay [s]	8.95	5.29	23.35	42.50
I_b,int, Bicycle LOS Score for Intersection	2.861	2.170	3.715	4.132
Bicycle LOS	C	B	D	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.817

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	551	79	876	381	174	714
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	101	0	3	6	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	686	84	933	410	185	786
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	220	27	299	131	59	252
Total Analysis Volume [veh/h]	879	108	1196	526	237	1008
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	9	33	18	27
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	0	5	0	5
Pedestrian Clearance [s]	24	0	0	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	23	23	6	33
g / C, Green / Cycle	0.31	0.31	0.38	0.38	0.10	0.55
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.23	0.33	0.07	0.28
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1090	501	1934	604	366	1965
d1, Uniform Delay [s]	18.92	15.14	15.13	17.30	25.83	8.43
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	0.21	1.50	15.88	1.94	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.22	0.62	0.87	0.65	0.51
d, Delay for Lane Group [s/veh]	20.38	15.35	16.62	33.18	27.76	9.39
Lane Group LOS	C	B	B	C	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.27	1.02	4.15	8.51	1.63	3.48
50th-Percentile Queue Length [ft/ln]	131.63	25.54	103.66	212.86	40.80	87.11
95th-Percentile Queue Length [veh/ln]	9.03	1.84	7.46	13.30	2.94	6.27
95th-Percentile Queue Length [ft/ln]	225.71	45.97	186.58	332.49	73.44	156.81

Movement, Approach, & Intersection Results

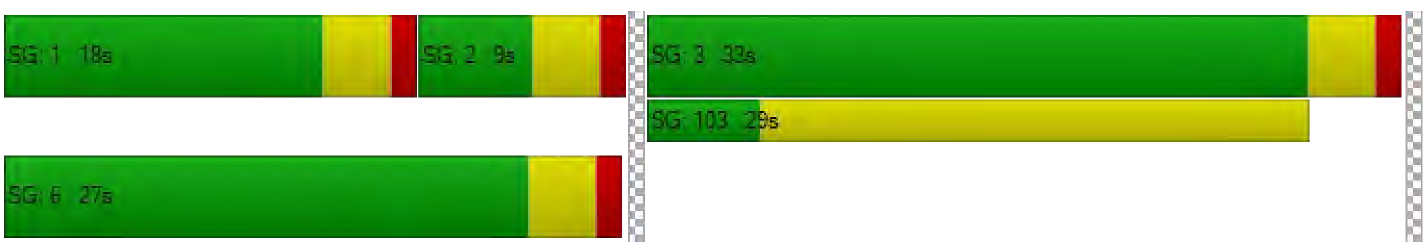
d_M, Delay for Movement [s/veh]	20.38	15.35	16.62	33.18	27.76	9.39
Movement LOS	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	19.83		21.68		12.88	
Approach LOS	B		C		B	
d_I, Intersection Delay [s/veh]	18.45					
Intersection LOS	B					
Intersection V/C	0.817					

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.21	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.628	0.000	2.930
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.080	5.160
Bicycle LOS	D	F	F

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix R

Freeway Analysis

EAPC Conditions - Concert Sellout (Pre-Event Hour)

Freeway Segment Analysis

Freeway Merge/Diverge Analysis

Freeway Off-Ramp Queuing Analysis

Freeway Off-Ramp Queuing Analysis with TMP Measure

Freeway Segment Analysis

EAPC Conditions - Concert Sellout (Pre-Event Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - West of Cook Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(1) I-10 WB West of Cook Street\(1) I-10 WB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2729	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1038	70.0	14.8	2400	0.43	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - West of Cook Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(2) I-10 EB West of Cook Street\(2) I-10 EB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	4561	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1735	66.7	26.0	2400	0.72	D

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Cook Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(3) I-10 WB East of Cook Street\(3) I-10 WB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2601	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
980	70.0	14.0	2400	0.41	B

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Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East Cook Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(4) I-10 EB East of Cook Street\(4) I-10 EB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3222	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1214	70.0	17.3	2400	0.51	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Washington Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(5) I-10 WB East of Washington Street\(5) I-10 WB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3543	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1348	69.7	19.3	2400	0.56	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East of Washington Street	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/18/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Freeway Segments\(6) I-10 EB East of Washington Street\(6) I-10 EB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2900	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1103	70.0	15.8	2400	0.46	B

Freeway Merge/Diverge Analysis

EAPC Conditions - Concert Sellout (Pre-Event Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/20/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	west of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(1) I-10 WB On-Ramp at Cook Street (Merge)\(1) I-10 WB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
4	2611	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
118	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	500	N/A	500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2980	131	3111	0.325	1192

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.32	61.9	12.6
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
65.6	11.9	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/28/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(2) I-10 EB Off-Ramp at Cook Street (Diverge) - V3\(2) I-10 EB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	4561	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
2164	5.00	0.00	0.952	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
2	0	1500	1500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
5205	2470	2736	0.450	3701

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.72	53.6	22.6
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
58.4	29.7	C

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HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/20/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(3) I-10 WB Off-Ramp at Cook Street (Diverge)\(3) I-10 WB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2601	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
518	2.00	0.00	0.980	30
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	150	N/A	150	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2940	574	2366	0.660	2136

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.41	54.7	21.3
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
59.4	16.5	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/4/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(4) I-10 EB On-Ramp at Cook Street (Merge)\(4) I-10 EB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2700	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
522	1.00	0.00	0.990	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
3082	573	3655	0.586	1805

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.51	60.6	21.9
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.7	19.4	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Washington Street (Diverge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/20/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(5) I-10 WB Off-Ramp at Washington Street (Diverge)\(5) I-10 WB Off-Ramp at Wahington Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3543	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
838	3.00	0.00	0.971	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	150	N/A	150	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

4044	938	3105	0.616	2850

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.56	57.5	27.4
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
61.9	21.8	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Washington Street (Merge)	**Analysis Period**	EAPC (Weekday 6-7 PM) Concert Sellout
Analysis Date	12/20/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 6-7 PM)\Merge-Diverge Areas\(6) I-10 EB On-Ramp at Washington Street (Merge)\(6) I-10 EB On-Ramp at Washington Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2438	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
462	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

2782	512	3295	0.586	1630

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.46	60.8	20.1
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.1	17.4	C

Freeway Off-Ramp Queuing Analysis

EAPC Conditions - Concert Sellout (Pre-Event Hour)

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	86.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.284

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	137	0	0	133	32	0	0	0	219	1	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2030	0	0	105	83	0	0	0	124	0	106
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2175	0	0	246	117	0	0	0	356	1	161
Peak Hour Factor	1.0000	0.7900	1.0000	1.0000	0.7900	0.7900	1.0000	1.0000	1.0000	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	688	0	0	78	37	0	0	0	113	0	51
Total Analysis Volume [veh/h]	0	2753	0	0	311	148	0	0	0	451	1	204
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	43	0	0	43	0	0	0	0	0	17	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	39	39	39		13	13
g / C, Green / Cycle	0.65	0.65	0.65		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.77	0.09	0.10		0.25	0.13
s, saturation flow rate [veh/h]	3560	3560	1597		1781	1589
c, Capacity [veh/h]	2308	2308	1035		389	348
d1, Uniform Delay [s]	10.57	4.07	4.11		23.46	21.03
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	91.41	0.12	0.30		78.89	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.19	0.13	0.15		1.16	0.59
d, Delay for Lane Group [s/veh]	101.98	4.19	4.41		102.36	22.61
Lane Group LOS	F	A	A		F	C
Critical Lane Group	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	39.03	0.53	0.59		13.60	2.53
50th-Percentile Queue Length [ft/ln]	975.77	13.37	14.72		339.98	63.26
95th-Percentile Queue Length [veh/ln]	56.60	0.96	1.06		21.17	4.55
95th-Percentile Queue Length [ft/ln]	1414.93	24.07	26.49		529.33	113.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	101.98	0.00	0.00	4.19	4.41	0.00	0.00	0.00	102.36	102.36	22.61
Movement LOS		F			A	A				F	F	C
d_A, Approach Delay [s/veh]	101.98			4.26			0.00			77.56		
Approach LOS	F			A			A			E		
d_I, Intersection Delay [s/veh]	86.24											
Intersection LOS	F											
Intersection V/C	1.284											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.549	0.000
Crosswalk LOS	F	F	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1300	1300	0	433
d_b, Bicycle Delay [s]	3.68	3.68	30.00	18.41
I_b,int, Bicycle LOS Score for Intersection	3.831	1.812	4.132	2.642
Bicycle LOS	D	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	288.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.821

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	391	342	40	307	0	31	0	429	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	608	84	33	196	0	1530	0	146	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1023	447	75	522	0	1563	0	601	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	304	133	22	155	0	465	0	179	0	0	0
Total Analysis Volume [veh/h]	0	1218	532	89	621	0	1861	0	715	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	15	0	9	24	0	0	36	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	12	12	4	20	32	32	32	
g / C, Green / Cycle	0.20	0.20	0.07	0.33	0.53	0.53	0.53	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.36	0.05	0.12	1.04	0.22	0.22	
s, saturation flow rate [veh/h]	3560	1611	1781	5094	1781	1589	1589	
c, Capacity [veh/h]	720	326	118	1708	947	845	845	
d1, Uniform Delay [s]	24.00	24.00	27.59	15.14	14.09	8.51	8.51	
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	285.41	367.83	9.16	0.60	438.15	0.34	0.34	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.62	1.79	0.75	0.36	1.97	0.42	0.42	
d, Delay for Lane Group [s/veh]	309.41	391.83	36.75	15.74	452.23	8.85	8.85	
Lane Group LOS	F	F	D	B	F	A	A	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	33.25	37.55	1.49	2.03	125.20	2.35	2.35	
50th-Percentile Queue Length [ft/ln]	831.36	938.69	37.31	50.85	3130.08	58.68	58.68	
95th-Percentile Queue Length [veh/ln]	52.13	59.49	2.69	3.66	202.29	4.22	4.22	
95th-Percentile Queue Length [ft/ln]	1303.34	1487.16	67.15	91.54	5057.35	105.62	105.62	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	312.88	391.83	36.75	15.74	0.00	452.23	8.85	8.85	0.00	0.00	0.00
Movement LOS		F	F	D	B		F	A	A			
d_A, Approach Delay [s/veh]	336.88			18.37			329.16			0.00		
Approach LOS	F			B			F			A		
d_I, Intersection Delay [s/veh]	288.03											
Intersection LOS	F											
Intersection V/C	1.821											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.758	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	667	1067	0
d_b, Bicycle Delay [s]	20.01	13.33	6.53	30.00
I_b,int, Bicycle LOS Score for Intersection	2.522	1.950	5.810	4.132
Bicycle LOS	B	A	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	269	60	586	253	118	461
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	489	0	7	5	0	93
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	774	64	629	273	125	582
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	228	19	185	80	37	171
Total Analysis Volume [veh/h]	911	75	740	321	147	685
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	34	0	26	34	10	36
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	5	5	0	5
Pedestrian Clearance [s]	24	0	17	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	31	31	5	40
g / C, Green / Cycle	0.31	0.31	0.45	0.45	0.07	0.57
(v / s)_i Volume / Saturation Flow Rate	0.26	0.05	0.15	0.20	0.04	0.19
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	1082	497	2278	711	238	2040
d1, Uniform Delay [s]	22.48	17.38	12.53	13.42	31.76	7.91
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.87	0.14	0.38	2.07	2.61	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.15	0.32	0.45	0.62	0.34
d, Delay for Lane Group [s/veh]	24.34	17.51	12.91	15.49	34.36	8.36
Lane Group LOS	C	B	B	B	C	A
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	6.77	0.85	2.35	3.57	1.26	2.42
50th-Percentile Queue Length [ft/ln]	169.33	21.14	58.65	89.16	31.42	60.57
95th-Percentile Queue Length [veh/ln]	11.04	1.52	4.22	6.42	2.26	4.36
95th-Percentile Queue Length [ft/ln]	276.04	38.05	105.57	160.48	56.56	109.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.34	17.51	12.91	15.49	34.36	8.36
Movement LOS	C	B	B	B	C	A
d_A, Approach Delay [s/veh]	23.82		13.69		12.95	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.95					
Intersection LOS	B					
Intersection V/C	0.613					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	0.00	26.58
I_p,int, Pedestrian LOS Score for Intersection	2.572	0.000	2.812
Crosswalk LOS	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	35.00	35.00	35.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.716	4.819
Bicycle LOS	D	E	E

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Freeway Off-Ramp Queuing Analysis

EAPC Conditions - Concert Sellout (Pre-Event Hour) - TMP Measure

Intersection Level Of Service Report
Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	60.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.061

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	391	342	40	307	0	31	0	429	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	608	84	33	196	0	1530	0	146	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1023	447	75	522	0	1563	0	601	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	304	133	22	155	0	465	0	179	0	0	0
Total Analysis Volume [veh/h]	0	1218	532	89	621	0	1861	0	715	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	5	0	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	30	0	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	45	0	10	55	0	60	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	17	0	10	0	0	0	0	0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No		No					
Maximum Recall		No		No	No		No					
Pedestrian Recall		No		No	No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	R	
C, Cycle Length [s]	115	115	115	115	115	115	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	41	41	6	51	56	56	
g / C, Green / Cycle	0.36	0.36	0.05	0.44	0.49	0.49	
(v / s)_i Volume / Saturation Flow Rate	0.33	0.36	0.05	0.12	0.54	0.45	
s, saturation flow rate [veh/h]	3560	1611	1781	5094	3459	1589	
c, Capacity [veh/h]	1271	575	94	2266	1680	772	
d1, Uniform Delay [s]	35.35	36.96	54.25	20.18	29.56	27.64	
k, delay calibration	0.50	0.50	0.11	0.50	0.13	0.41	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	11.97	41.23	30.85	0.30	51.38	16.30	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.92	1.01	0.94	0.27	1.11	0.93	
d, Delay for Lane Group [s/veh]	47.32	78.19	85.10	20.48	80.94	43.94	
Lane Group LOS	D	F	F	C	F	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	17.44	22.37	3.37	3.57	34.06	21.07	
50th-Percentile Queue Length [ft/ln]	435.88	559.36	84.34	89.20	851.60	526.71	
95th-Percentile Queue Length [veh/ln]	24.28	30.44	6.07	6.42	47.16	28.60	
95th-Percentile Queue Length [ft/ln]	607.08	761.02	151.80	160.57	1178.99	714.90	

Movement, Approach, & Intersection Results

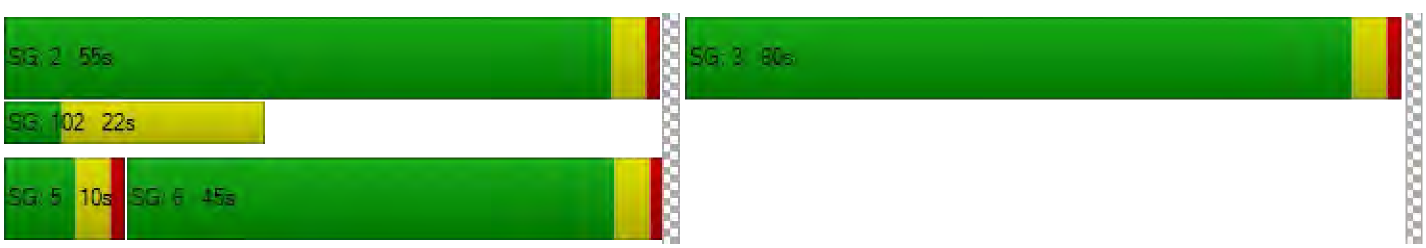
d_M, Delay for Movement [s/veh]	0.00	48.62	78.19	85.10	20.48	0.00	80.94	0.00	43.94	0.00	0.00	0.00
Movement LOS		D	E	F	C		F		D			
d_A, Approach Delay [s/veh]		57.61			28.58			70.67			0.00	
Approach LOS		E			C			E			A	
d_I, Intersection Delay [s/veh]	60.20											
Intersection LOS	E											
Intersection V/C	1.061											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	48.85	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.791	0.000
Crosswalk LOS	F	F	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	713	887	0	0
d_b, Bicycle Delay [s]	23.81	17.81	57.50	57.50
I_b,int, Bicycle LOS Score for Intersection	2.522	1.950	4.132	4.132
Bicycle LOS	B	A	D	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix S

Freeway Analysis

EAPC Conditions - Concert Sellout (Post-Event Hour)

Freeway Segment Analysis

Freeway Merge/Diverge Analysis

Freeway Off-Ramp Queuing Analysis

Freeway Segment Analysis

EAPC Conditions - Concert Sellout (Post-Event Hour)

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - West of Cook Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(1) I-10 WB West of Cook Street\(1) I-10 WB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	3479	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
1324	69.8	19.0	2400	0.55	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - West of Cook Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(2) I-10 EB West of Cook Street\(2) I-10 EB West of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1984	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
755	70.0	10.8	2400	0.31	A

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Cook Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/13/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(3) I-10 WB East of Cook Street\(3) I-10 WB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1378	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
519	70.0	7.4	2400	0.22	A

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East Cook Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(4) I-10 EB East of Cook Street\(4) I-10 EB East of Cook Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2075	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
782	70.0	11.2	2400	0.33	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB - East of Washington Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(5) I-10 WB East of Washington Street\(5) I-10 WB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1550	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
590	70.0	8.4	2400	0.25	A

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB - East of Washington Street	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Basic Freeway Segment
Agency	TMG	**To**		**Module Version Date**	6/20/2020
Location	East of Washington Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Freeway Segments\(6) I-10 EB East of Washington Street\(6) I-10 EB East of Washington Street (Freeway Segment).xfb

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	2321	0.920	1.000	1.000

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Performance Measures and LOS

Analysis Flow Rate (pc/h/ln)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Adjusted Capacity (pc/h/ln)	v/c ratio	LOS
883	70.0	12.6	2400	0.37	B

Freeway Merge/Diverge Analysis

EAPC Conditions - Concert Sellout (Post-Event Hour)

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HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	west of Cook Street	**Analysis Direction**	Westbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(1) I-10 WB On-Ramp at Cook Street (Merge)\(1) I-10 WB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
4	1440	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
2039	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	500	N/A	500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
1643	2261	3904	0.059	657

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.41	60.3	24.1
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
62.4	15.6	C

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	West of Cook Street	**Analysis Direction**	EastBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(2) I-10 EB Off-Ramp at Cook Street (Diverge)\(2) I-10 EB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1984	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
267	5.00	0.00	0.952	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	1500	N/A	1500	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2264	305	1960	0.689	1656

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.31	59.1	5.0
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.0	12.0	A

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Cook Street (Diverge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(3) I-10 WB Off-Ramp at Cook Street (Diverge)\(3) I-10 WB Off-Ramp at Cook Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1378	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	% Grade	Length (mi)	% TTs	% SUTs	Truck PCE	Heavy Vehicle Factor
Level	N/A	N/A	4.0	0.0	2.00	0.962

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
121	2.00	0.00	0.980	30
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	150	N/A	150	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	Analysis Flow Rate, Off-Ramp (pc/h)	Analysis Flow Rate, Mainline Exit (pc/h)	Prop. Vehicles in Lanes 1 and 2	Flow Rate in Lanes 1 and 2 (pc/h)
1558	134	1424	0.715	1152

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.22	55.9	12.8
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
60.1	8.6	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Cook Street (Merge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Cook Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(4) I-10 EB On-Ramp at Cook Street (Merge)\(4) I-10 EB On-Ramp at Cook Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1891	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
184	1.00	0.00	0.990	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**
2158	202	2360	0.586	1264

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.33	61.3	14.9
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.9	12.3	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 WB Off-Ramp at Washington Street (Diverge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/20/2020	**From**		**Analysis Module**	Off-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	WestBound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(5) I-10 WB Off-Ramp at Washington Street (Diverge)\(5) I-10 WB Off-Ramp at Wahington Street (Diverge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1550	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

Off-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS (mi/h)
108	3.00	0.00	0.971	40
Lanes	**Decel Lane Length, 1 (ft)**	**Decel Lane Length, 2 (ft)**	**Effective Decel Lane Length (ft)**	
1	150	N/A	150	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, Off-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

1769	121	1648	0.710	1291

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.25	59.5	14.0
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.4	9.3	B

SwashWare
HCM-CALC

Project Properties

Analyst	S.K.	**Roadway Name**	I-10 EB On-Ramp at Washington Street (Merge)	**Analysis Period**	EAPC (Weekday 11-12 PM) Concert Sellout
Analysis Date	12/21/2020	**From**		**Analysis Module**	On-Ramp Segment
Agency	TMG	**To**		**Module Version Date**	4/2/2019
Location	East of Washington Street	**Analysis Direction**	Eastbound	**HCM Edition**	HCM2016

User Notes	
File Name	F:\Projects 2020\Coachella Valley Arena\Freeway Analysis\Concert - EAPC (Weekday 11-12 PM)\Merge-Diverge Areas\(6) I-10 EB On-Ramp at Washington Street (Merge)\(6) I-10 EB On-Ramp at Washington Street (Merge).xfr

Input Values and Intermediate Calculation Results

Mainline Data

# Lanes	Demand (veh/h)	Peak Hour Factor	FFS Adj. Factor	Capacity Adj. Factor
3	1594	0.920	1	1

Heavy Vehicle Factor Values						
Terrain	**% Grade**	**Length (mi)**	**% TTs**	**% SUTs**	**Truck PCE**	**Heavy Vehicle Factor**
Level	N/A	N/A	5.0	0.0	2.00	0.952

Free Flow Speed Values	
FFS Method	Measured
FFS (mi/h)	70.0

On-Ramp Data

Demand (veh/h)	% Trucks	% RVs	Heavy Vehicle Factor	FFS
727	2.00	0.00	0.980	45
Lanes	**Accel Lane Length, 1 (ft)**	**Accel Lane Length, 2 (ft)**	**Effective Accel Lane Length (ft)**	
1	300	N/A	300	

Analysis Flow Rates				
Analysis Flow Rate, Mainline Entrance (pc/h/ln)	**Analysis Flow Rate, On-Ramp (pc/h)**	**Analysis Flow Rate, Mainline Exit (pc/h)**	**Prop. Vehicles in Lanes 1 and 2**	**Flow Rate in Lanes 1 and 2 (pc/h)**

1819	806	2625	0.586	1066

Adjacent Ramp Data

Performance Measures and LOS

v/c ratio	Avg. Speed, Ramp Influence Area (mi/h)	Density, Ramp Influence Area (pc/mi/ln)
0.36	61.1	17.8
Avg. Speed, Overall (mi/h)	**Density, Overall (pc/mi/ln)**	**LOS**
63.2	13.9	B

Freeway Off-Ramp Queuing Analysis

EAPC Conditions - Concert Sellout (Post-Event Hour)

Intersection Level Of Service Report
Intersection 5: Cook Street and I-10 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	324.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.088

Intersection Setup

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 WB On-Ramp			I-10 WB Off-Ramp		
Base Volume Input [veh/h]	0	15	0	0	14	3	0	0	0	44	3	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0000	1.0000	1.0612	1.0612	1.0000	1.0000	1.0000	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	162	0	0	696	2033	0	0	0	49	0	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	178	0	0	711	2036	0	0	0	96	3	22
Peak Hour Factor	1.0000	0.8000	1.0000	1.0000	0.8000	0.8000	1.0000	1.0000	1.0000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	0	0	222	636	0	0	0	30	1	7
Total Analysis Volume [veh/h]	0	223	0	0	889	2545	0	0	0	120	4	28
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	51	0	0	51	0	0	0	0	0	9	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	9	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		C	R
C, Cycle Length [s]	60	60	60		60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	47	47	47		5	5
g / C, Green / Cycle	0.78	0.78	0.78		0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.06	0.25	1.60		0.07	0.02
s, saturation flow rate [veh/h]	3560	3560	1589		1784	1589
c, Capacity [veh/h]	2778	2778	1240		154	137
d1, Uniform Delay [s]	1.55	1.93	6.60		26.93	25.51
k, delay calibration	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.06	0.30	476.19		9.33	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.32	2.05		0.80	0.20
d, Delay for Lane Group [s/veh]	1.60	2.24	482.79		36.27	26.23
Lane Group LOS	A	A	F		D	C
Critical Lane Group	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	0.11	0.56	168.32		2.05	0.38
50th-Percentile Queue Length [ft/ln]	2.79	14.11	4207.90		51.23	9.51
95th-Percentile Queue Length [veh/ln]	0.20	1.02	281.65		3.69	0.68
95th-Percentile Queue Length [ft/ln]	5.02	25.39	7041.31		92.21	17.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	1.60	0.00	0.00	2.24	482.79	0.00	0.00	0.00	36.27	36.27	26.23
Movement LOS		A			A	F				D	D	C
d_A, Approach Delay [s/veh]	1.60			358.38			0.00			34.42		
Approach LOS	A			F			A			C		
d_I, Intersection Delay [s/veh]	324.57											
Intersection LOS	F											
Intersection V/C	2.088											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.889	0.000
Crosswalk LOS	F	F	D	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1567	1567	0	167
d_b, Bicycle Delay [s]	1.41	1.41	30.00	25.21
I_b,int, Bicycle LOS Score for Intersection	1.744	3.448	4.132	1.810
Bicycle LOS	A	C	D	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report

Intersection 6: Cook Street and I-10 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.303

Intersection Setup

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	310.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			No		

Volumes

Name	Cook Street			Cook Street			I-10 EB Off-Ramp			I-10 EB On-Ramp		
Base Volume Input [veh/h]	0	73	54	5	52	0	3	3	87	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0612	1.0612	1.0612	1.0612	1.0000	1.0612	1.0612	1.0612	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	95	37	82	663	0	109	0	60	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	172	94	87	718	0	112	3	152	0	0	0
Peak Hour Factor	1.0000	0.8400	0.8400	0.8400	0.8400	1.0000	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	51	28	26	214	0	33	1	45	0	0	0
Total Analysis Volume [veh/h]	0	205	112	104	855	0	133	4	181	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	9	0	41	50	0	0	10	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	24	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	5	46	6	6	6	
g / C, Green / Cycle	0.62	0.62	0.08	0.77	0.10	0.10	0.10	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.07	0.06	0.17	0.07	0.06	0.06	
s, saturation flow rate [veh/h]	3560	1589	1781	5094	1781	1600	1589	
c, Capacity [veh/h]	2206	985	142	3901	180	162	161	
d1, Uniform Delay [s]	4.62	4.68	27.06	1.98	26.26	25.79	25.79	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.08	0.23	7.11	0.13	5.77	3.16	3.19	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.09	0.11	0.73	0.22	0.74	0.57	0.57	
d, Delay for Lane Group [s/veh]	4.70	4.92	34.17	2.11	32.03	28.95	28.98	
Lane Group LOS	A	A	C	A	C	C	C	
Critical Lane Group	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.40	0.48	1.66	0.40	2.03	1.34	1.33	
50th-Percentile Queue Length [ft/ln]	10.00	11.97	41.50	9.88	50.80	33.41	33.24	
95th-Percentile Queue Length [veh/ln]	0.72	0.86	2.99	0.71	3.66	2.41	2.39	
95th-Percentile Queue Length [ft/ln]	17.99	21.54	74.70	17.79	91.44	60.14	59.84	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	4.70	4.92	34.17	2.11	0.00	32.03	28.95	28.97	0.00	0.00	0.00
Movement LOS		A	A	C	A		C	C	C			
d_A, Approach Delay [s/veh]	4.78			5.59			30.25			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	10.35											
Intersection LOS	B											
Intersection V/C	0.303											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	21.68	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.024	0.000
Crosswalk LOS	F	F	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	1533	200	0
d_b, Bicycle Delay [s]	25.21	1.63	24.30	30.00
I_b,int, Bicycle LOS Score for Intersection	1.734	2.087	2.084	4.132
Bicycle LOS	A	B	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: I-10 WB On-Off Ramps and Varner Road

Control Type:	Signalized	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	0	2	0
Pocket Length [ft]	172.00	172.00	100.00	100.00	230.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	I-10 WB On-Off Ramps		Varner Road		Varner Road	
Base Volume Input [veh/h]	56	12	54	48	16	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0612	1.0612	1.0612	1.0612	1.0612	1.0612
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	0	119	3	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	13	176	54	17	54
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	4	55	17	5	17
Total Analysis Volume [veh/h]	119	16	220	68	21	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal group	3	0	2	3	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	5	5	5
Maximum Green [s]	30	0	30	30	30	30
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	33	0	27	33	10	37
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	5	0	5	5	0	5
Pedestrian Clearance [s]	24	0	17	24	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	5	52	52	2	57
g / C, Green / Cycle	0.07	0.07	0.74	0.74	0.02	0.82
(v / s)_i Volume / Saturation Flow Rate	0.03	0.01	0.04	0.04	0.01	0.02
s, saturation flow rate [veh/h]	3459	1589	5094	1589	3459	3560
c, Capacity [veh/h]	234	108	3746	1169	89	2913
d1, Uniform Delay [s]	31.56	30.79	2.56	2.56	33.49	1.18
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.70	0.63	0.03	0.10	1.35	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.15	0.06	0.06	0.24	0.02
d, Delay for Lane Group [s/veh]	33.26	31.42	2.59	2.66	34.83	1.20
Lane Group LOS	C	C	A	A	C	A
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.00	0.27	0.18	0.19	0.19	0.03
50th-Percentile Queue Length [ft/ln]	24.91	6.64	4.55	4.74	4.67	0.71
95th-Percentile Queue Length [veh/ln]	1.79	0.48	0.33	0.34	0.34	0.05
95th-Percentile Queue Length [ft/ln]	44.85	11.96	8.18	8.54	8.40	1.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.26	31.42	2.59	2.66	34.83	1.20
Movement LOS	C	C	A	A	C	A
d_A, Approach Delay [s/veh]	33.05		2.61		9.13	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	11.77					
Intersection LOS	B					
Intersection V/C	0.101					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	0.00	26.58
I_p,int, Pedestrian LOS Score for Intersection	2.332	0.000	2.628
Crosswalk LOS	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	35.00	35.00	35.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.291	4.206
Bicycle LOS	D	E	D

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix T

Scoping Agreement

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2005.

Case No. (i.e. TR, PM, CUP, PP) PPT200021
Related Cases -
SP No. *Provide SP No. and list of other approved or active projects within the SP.* SP00343A02
EIR No. CEQ200074
GPA No. OAPL2001271, GPA20005,
CZ No. NOT YET ASSIGNED
Project Name: NORTHSTAR SPECIFIC PLAN SP-343 AMENDMENT
Project Address: 75-200 CLASSIC CLUB BLVD, PALM DESERT, CA 92211
Project Description: SEE ATTACHMENT 2

	Consultant	Developer
Name:	THE MOBILITY GROUP	SOCAL ARENA COMPANY, LLC
Address:	18301 VON KARMAN, #490	STEPHEN COLLINS
	IRVINE, CA 92612	1100 GLENDON AVE, #2100
Telephone:	949-474-1591	LOS ANGELES, CA 90024
Fax:	949-474-1599	310-954-4869

A. Trip Generation Source: (ITE 7th Edition or other) ITE 10th & EMPIRICAL ESTIMATE SEE ATTACHMENT 3

Current GP Land Use — *Provide General Plan Land Use Designation (e.g.: MDR, CR, etc)* SEE ATTACHMENT 4 — Proposed Land Use

Current Zoning — Proposed Zoning

	Current Trip Generation In	Out	Total	Proposed Trip Generation In	Out	Total
AM Trips						
PM Trips				SEE ATTACHMENT 3		

Internal Trip Allowance ☒ Yes ☐ No (FOR SP 10 % Trip Discount)
Pass-By Trip Allowance ☐ Yes ☒ No (% Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N 0 % S 17 % E 21 % W 62 %
(attach exhibit for detailed assignment) SEE ALSO ATTACHMENT 6

C. Background Traffic

Project Build-out Year: 2023 ~~*Provide realistic opening year, considering time needed for approvals and construction.*~~ Annual Ambient Growth Rate: 2 %
Phase Year(s) NONE
Other area projects to be analyzed: SEE ATTACHMENT 8 — RELATED PROJECTS LIST

Model/Forecast methodology VISTRO MODEL

Exhibit B – Scoping Agreement – Page 2

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. SEE
2.
3. ATTACHMENT 7
4.
5.
6.
7.
8.
9.
10.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☒ Yes ☐ No

If so, name of City Jurisdiction: PALM DESERT

F. Site Plan (please attach reduced copy) SEE ATTACHMENT 2

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

NONE ADDITIONAL

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts 2019 FOR SOME LOCATIONS, TBD FOR OTHERS.

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

[signature] 11-13-20
Consultant's Representative Date

Scoping Agreement Submitted on 11-16-20

Revised on ________

Approved Scoping Agreement:

[signature] 11/23/2020
Riverside County Transportation Department Date

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

List of Attachments

Attachment 1	Case Numbers
Attachment 2	Project Description
Attachment 3	Project Trip Generation
Attachment 4	Land Use & Zoning
Attachment 5	Analysis Scenarios
Attachment 6	Project Trip Distribution
Attachment 7	Analysis Locations
Attachment 8	Related Projects

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 1 - Case Numbers

Case Numbers

The new Case Number is PPT20021.

The past case numbers for the Specific Plan site are:
:
SP 151
SP 151 A#1
SP151 A#2
DA 16
GPA707
SP 343
CZ7002
EIR470
PP19740
PP20570
PP19050
PP19242
TR34484

The new case numbers are:

CEQ200074 (Env Review Case)
GPA200005 (General Plan Amendment)
OAPL2001271 (General Plan Amendment)
SP00343A02 (Specific Plan Amendment)

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 2 - Project Description

Project Description - General

Amendment to NorthStar Specific Plan to add a new 47.5- acre Planning Area (Planning Area 11) to permit development of a Multi-Purpose Arena and Event Center as part of the mixed-use NorthStar Specific Plan Project. The size of Planning Area 8, Business Park, would be reduced from 69.6 to 22.1 acres to accommodate the new Planning Area.

See following pages for Approved and Amended Specific Plan Site Figures and Land Use Tables.

Project Description – Detailed

The arena would host a variety of events with vastly different attendance levels. It would provide 9,918 seats for hockey games, and up to 11,000 seats for concerts. The arena event center would provide a year-round venue for a variety of AHL games and non-AHL events, including concerts, family shows, other sporting events, and conventions/corporate events. Up to 46 AHL games and 138 non-AHL game events, for a total of 184 events could occur annually at the arena event center. These are described below.

Table 1 summarizes the types of events and the projected number of events with maximum attendance (sellout) and average (typical) attendance.

AHL Games: The hockey season runs from October to May. There could be a total of up to 46 AHL games at the arena, which could comprise 1 to 4 pre-season games. 34 regular season games, and if the team reaches the post-season, between 1 to 8 playoff games. Maximum hockey seating capacity at the event center would be 9,918. The average game day attendance is estimated to be approximately 7,500 patrons during the regular season. The majority of home games would start at 7:00 P.M. and run approximately 2-1/2 hours in duration. Home games would be evenly split between weekdays and weekends.

Concerts: There would be an estimated 45 annual concerts at the arena event center, which would occur throughout the year. They would vary in attendance levels, depending on the artist and stage configuration. The estimated average attendance level would be approximately 7,500 patrons. The arena event center design would allow for an end-stage concert configuration to accommodate a maximum of 11,000 patrons; this configuration would account for about 50% of concerts. Occasionally - maybe 1 to 2 times per year - concerts would occur in a full 360-degree center-stage configuration which would allow for a maximum attendance of about 11,700 patrons. Concerts would typically occur on Friday and Saturday evenings within a 7:00 p.m. to 11:00 p.m. window.

Family Shows: There would be an estimated 38 annual family shows which would account for approximately 28% of non-AHL events. Family shows would occur year round and would provide theatrical entertainment geared towards children and families. Examples include Disney on Ice, Sesame Street Live, and Cirque Du Soleil. Family show series would typically occur over a 3-day block of time (Friday through Sunday) during which time as many as 3 performances would occur in the daytime and evening periods (2- 5 PM, and 7 – 10PM). The estimated average attendance at a family show would be 4,000 patrons, and maximum attendance would be 5,000 patrons.

Other Sporting Events; There would be an estimated 10 other sporting events annually, which would occur throughout the year. Examples of other non-AHL sporting events include basketball, boxing, mixed martial arts, and wrestling. These events could be professional, collegiate, amateur, high school/youth, local, regional, or international competitions. The estimated average attendance for other sporting events would be 7,000 patrons, with the estimated maximum attendance of 10,000.

Other Events – Various: There would be an estimated 20 rental uses of the arena event center annually, which could occur throughout the year. This would include conventions, conferences, cultural events, and other events, with an estimated average attendance level of 800 patrons and maximum attendance for 3,000 patrons.

For small attendance events, the arena event center performance and seating areas could be configured, and event patron access could be managed, to create a smaller venue space and more intimate experience for the performances.

G League: There would be an estimated 25 G League basketball games a year, which would occur on both weekdays and at weekends. These events would typically start at 7pm. A maximum attendance of 1,000 is expected once a year, with 24 games of average attendance of 750.

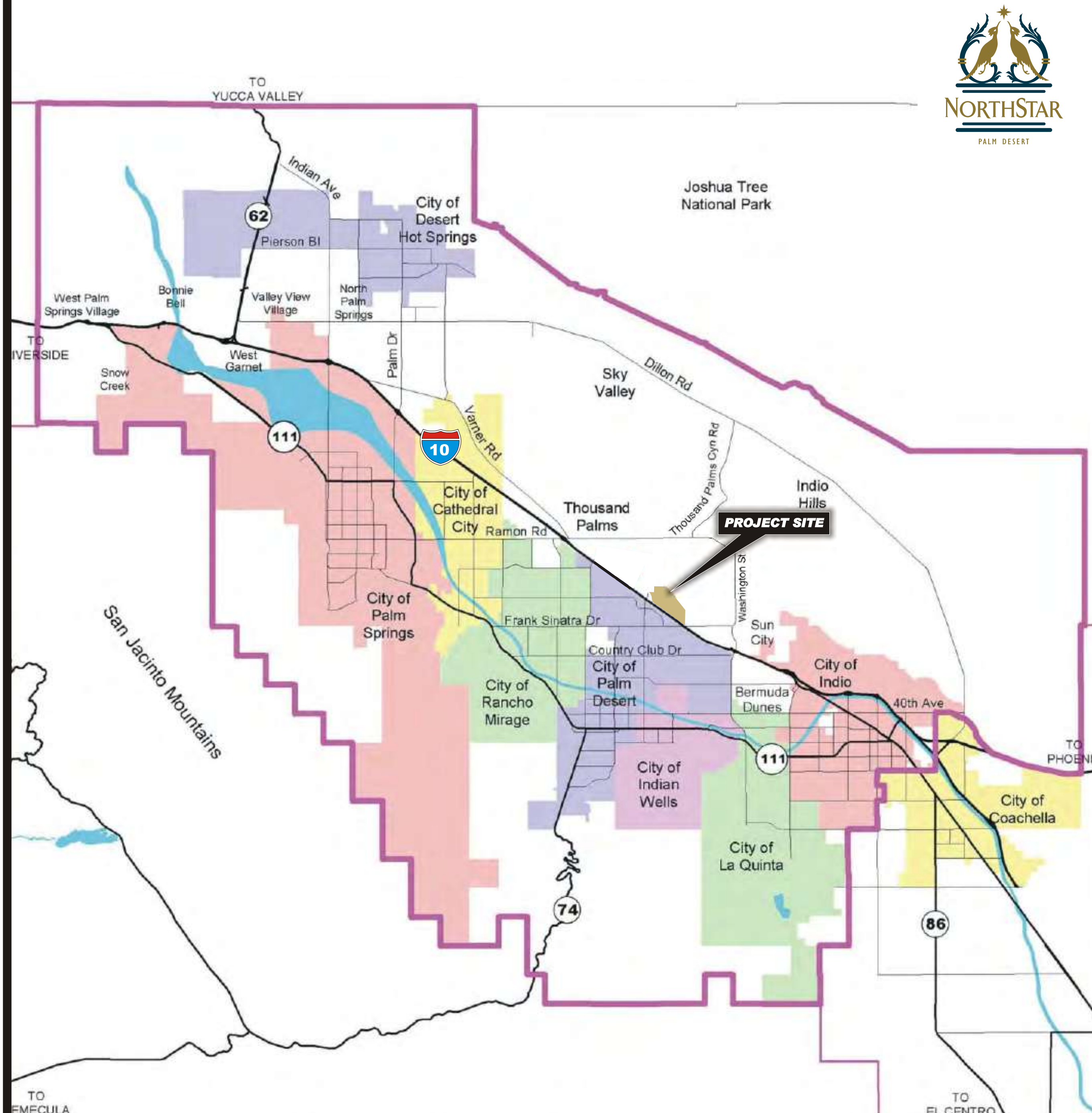
Community Ice Rink: The Training Center ice sheet would be open about nine months of the year (closed in the three summer months). It would be used about 50% of the time by the AHL team for practice. When not in use by the AHL team, the training ice rink would be available as a community ice facility on non-event days (approximately 135 days a year). It is anticipated that it would be open 7 days a week and for 6 to 8 hours a day, with typically 20 to 40 people using it per hour. It could be used for public skating sessions, skate/hockey lessons, or hockey leagues.

Table 1. Summary of Events and Projected Attendance Levels.

No. of Events	*Type*	*Level*	*Attendance*
23	Concert	Sell-Out	11,000
22		Average	7,500
45 Total			
5	AHL Game	Sell-Out	9,918
41		Average	7,500
46 Total			
19	Family	Maximum	5,000
19		Average	4,000
38 Total			
2	Other Sport	Maximum	10,000
8		Average	7,000
10 Total			
10	Other - Various	Maximum	3,000
10		Average	800
20 Total			
1	G League	Maximum	1,000
24		Average	750
25 Total			
184 Total			

Source: Oak View Group.

Location Maps



REGIONAL LOCATION MAP

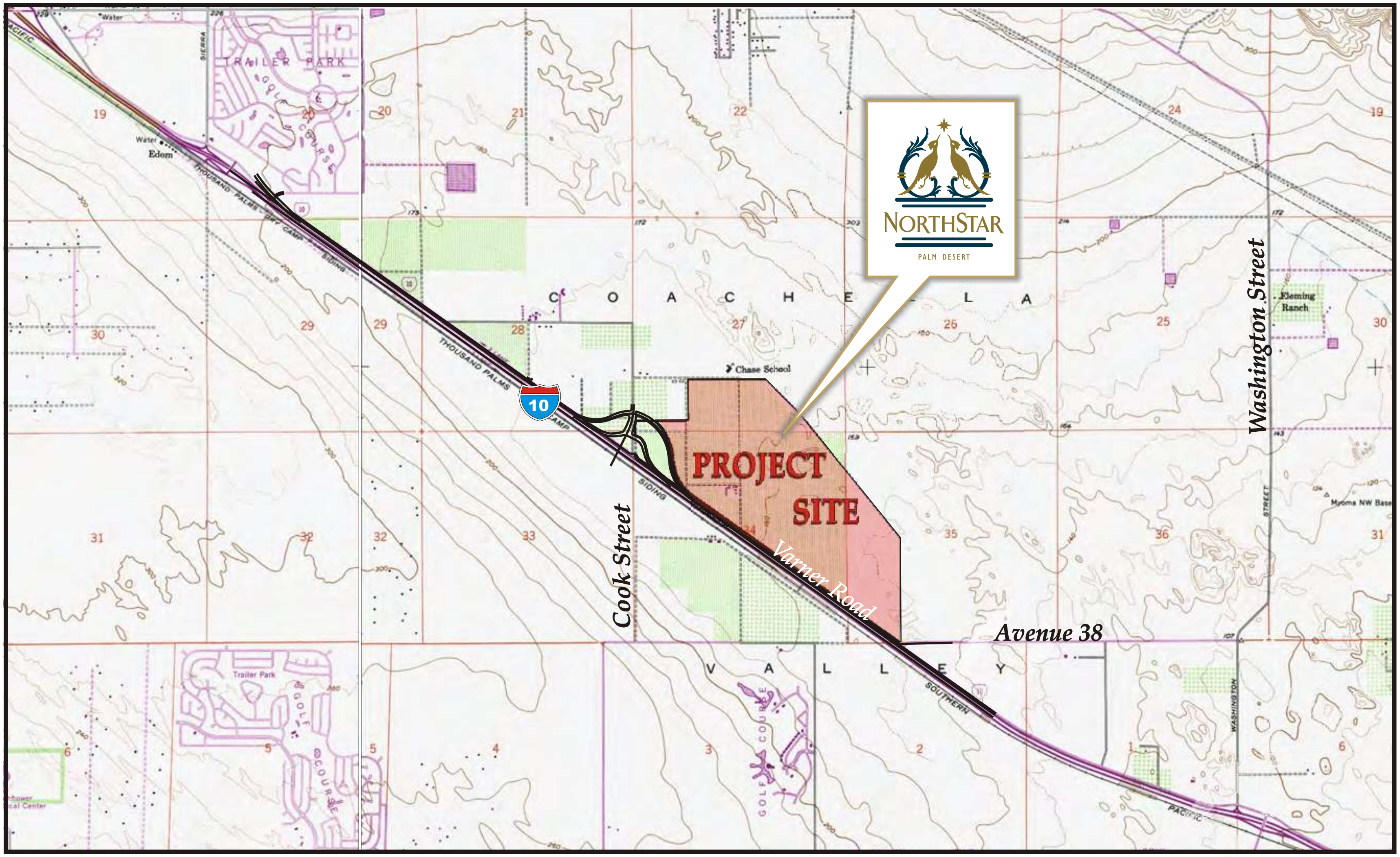
TKC

NORTHSTAR
40421.03.000 SPECIFIC PLAN

NOT TO SCALE

N

Figure II-1



PROJECT VICINITY LOCATION MAP

The Keith Companies TKC

NORTHSTAR
40421.03.000 SPECIFIC PLAN

NOT TO SCALE

N

Figure II-2

Approved Land Use Summary

TABLE IV-1
LAND USE SUMMARY
NORTHSTAR

PLANNING AREA	LAND USE DESCRIPTION	LAND AREA (ACRES)	D.U. /ACRE	DWELLING UNIT TOTAL	MAXIMUM FLOOR AREA
1	18-hole Golf Course	240.00	N/A	N/A	N/A
2	Golf Clubhouse	5.90	N/A	N/A	81,000
3	Golf View Hotel	17.60	N/A	N/A	350 (key), 25,000 square foot spa, 32,000 square feet of meeting rooms
4	Golf View Villas	7.30	7.4	54	N/A
5	Resort Timeshare Units	9.95	21.7	216	N/A
6	Golf View Condominiums	33.20	16.6	550	N/A
7	Mixed Use Retail Village	36.20	N/A*	150	400,000
8	Industrial Park *(Research & Development)*	69.60	N/A	N/A	1,200,000
9	Executive Office	16.0	N/A	N/A	230,000
10	Community Commercial	20.0	N/A	N/A	100,000
TOTAL	N/A	**455.75**	N/A	**970**	**2,068,000 and 350 Key Hotel**

** Due to the integration of residential uses into this mixed use planning area, a density per acre is not applicable.*

c) Project Wide Development Standards

Project-wide development standards shall be applied to ensure overall design coordination of the various planning areas within the NorthStar Specific Plan. The standards outlined below serve to ensure the orderly development of the land use plan on a community wide basis. The discussion following in Section B (Chapter IV) provides a detailed discussion of standards that apply specifically to each of the individual planning areas.

1) The NorthStar Resort will develop with a maximum of 970 dwelling units; 500,000 square feet of commercial retail space (Mixed Use Retail Village and Community Commerical); 18 holes of golf with 81,000 square foot clubhouse, golf practice facilities; a 350-key resort hotel with 25,000 square feet of spa area and 20,000 square feet of meeting rooms; 230,000 square feet of executive office space; and 1,200,000 square feet of research and development space within the industrial park.

2) Land uses and development standards will be in accordance with the County of Riverside development codes except as specifically modified by this Specific Plan.

3) All development within the project site boundaries will be consistent with this Specific Plan and subsequent amendments on file with the County of Riverside Planning Department.

Amended Land Use Summary

TABLE II-1
LAND USE SUMMARY
NORTHSTAR SPECIFIC PLAN

PLANNING AREA	LAND USE DESCRIPTION	LAND AREA (ACRES)	D.U. /ACRE	DWELLING UNIT TOTAL	MAXIMUM FLOOR AREA (SQ. FT.)
1	18-hole Golf Course	240.00	NIA	NIA	NIA
2	Golf Clubhouse	5.90	NIA	NIA	81,000
3	Golf View Hotel	17.60	NIA	NIA	350 (key), 25,000 square foot spa, 32,000 square feet of meeting rooms
4	Golf View Villas	7.30	7.4	54	NIA
5	Resort Timeshare Units	9.95	21.7	216	NIA
6	Golf View Condominiums	33.20	16.6	550	NIA
7	Mixed Use Retail Village	36.20	NIA*	150	400,000
8	Industrial Park (Research & Development)	22.1	NIA	NIA	381,035
9	Executive Office	16.00	NIA	NIA	230,000
10	Community Commercial	20.00	NIA	NIA	100,000
11	Arena & Event Center Hockey Training Facility Basketball Training Facility	47.5	NIA	NIA	260,000 35,000 35,000
TOTAL	NIA	455.75	NIA	970	1,579,035 sq. ft. and 350 Key Hotel

** Due to the integration of residential uses into this mixed use planning area, a density per acre is not applicable.*

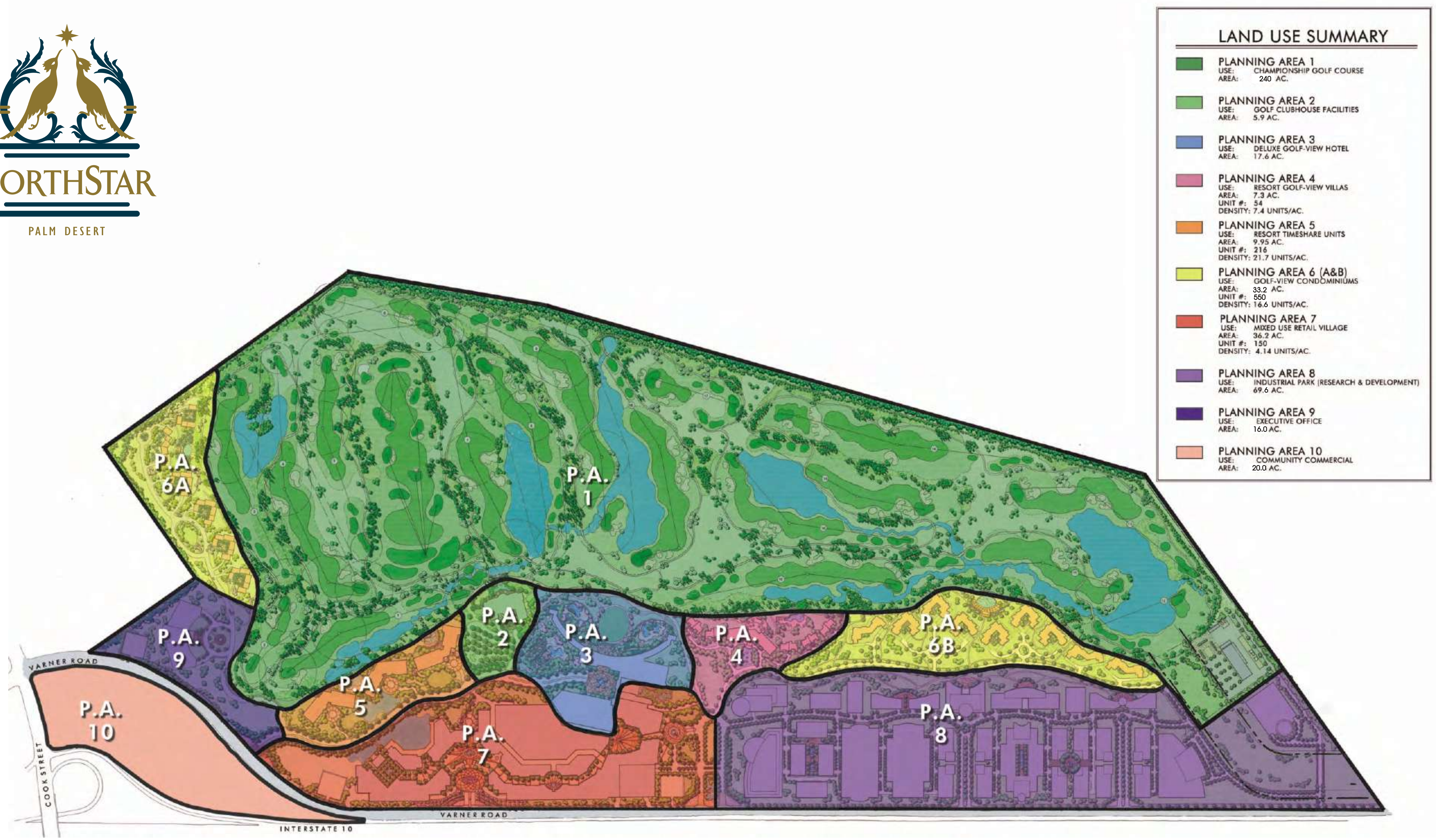
c) Project Wide Development Standards

Project-wide development standards shall be applied to ensure overall design coordination of the various planning areas within the NorthStar Specific Plan. The standards outlined below serve to ensure the orderly development of the land use plan on a community wide basis. The discussion following in Section B (Chapter IV) provides a detailed discussion of standards that apply specifically to each of the individual planning areas.

1) The NorthStar Resort will develop with a maximum of 970 dwelling units; 500,000 square feet of commercial retail space (Mixed Use Retail Village and Community Commercial); 18 holes of golf with 81,000 square foot clubhouse, golf practice facilities; a 260,000 square foot Arena and Event Center with 70,000 square feet of training facilities for both American Hockey League and National Basketball Association G League teams, 350-key resort hotel with 25,000 square feet of spa area and 20,000 square feet of meeting rooms; 230,000 square feet of executive office space; and 381,035 square feet of research and development space within the industrial park.

Approved Conceptual Land Use Plan

NORTHSTAR
PALM DESERT



CONCEPTUAL LAND USE PLAN

The Keith Companies TKC

NORTHSTAR
40421.03.000 SPECIFIC PLAN

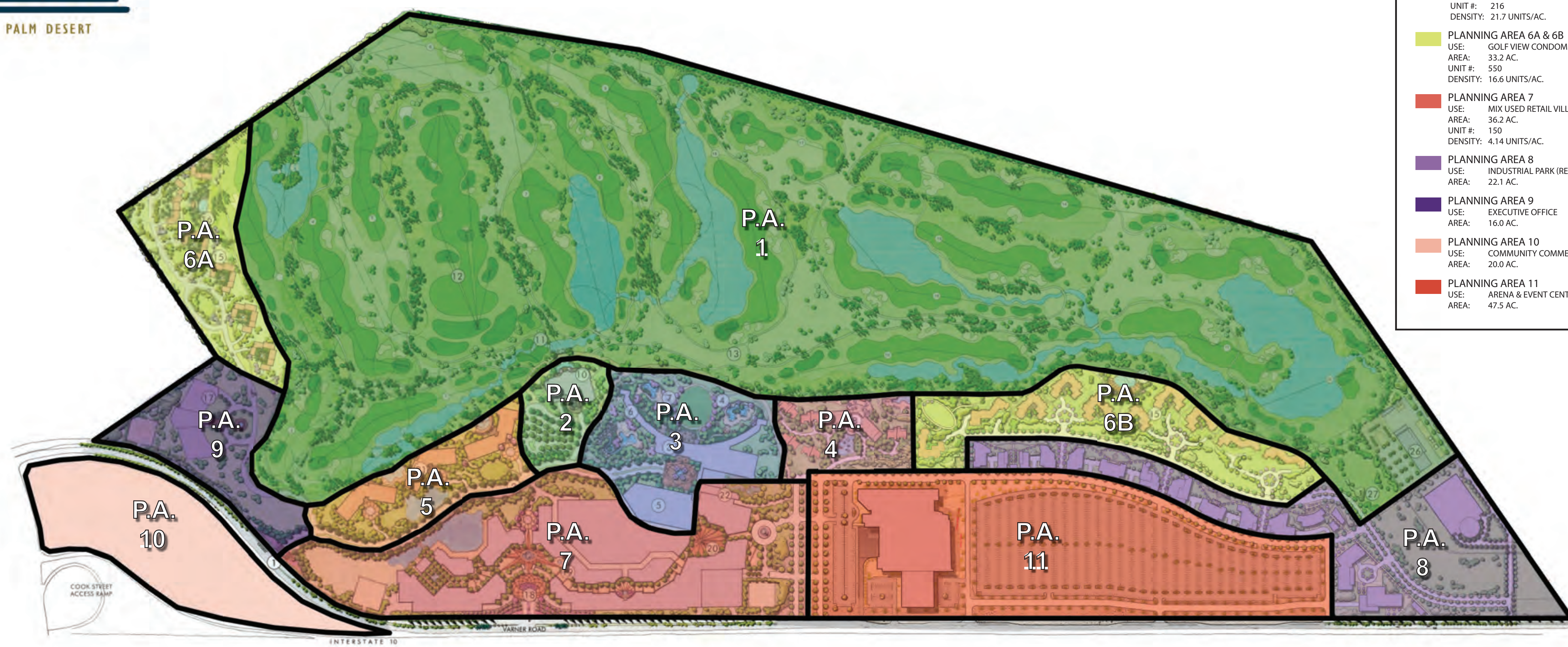
FEET
0 200 400 600

Figure IV-1

Amended Conceptual Land Use Plan

NORTHSTAR

PALM DESERT



APN's

695-100-001	*695-100-008
695-100-002	*695-100-009
695-100-004	*695-100-010
695-100-005	*695-100-012
695-100-006	*695-100-014
695-100-007	*695-100-015
695-100-011	
695-100-017	
695-070-001	

* APN's associated with Specific Plan Amendment

LAND USE SUMMARY

PLANNING AREA 1
USE: CHAMPIONSHIP GOLF COURSE
AREA: 240 AC.

PLANNING AREA 2
USE: GOLF CLUBHOUSE FACILITIES
AREA: 5.9 AC.

PLANNING AREA 3
USE: DELUXE GOLF-VIEW HOTEL
AREA: 17.6 AC.

PLANNING AREA 4
USE: RESORT GOLF-VIEW VILLAS
AREA: 7.3 AC.
UNIT #: 54
DENSITY: 7.4 UNITS/AC.

PLANNING AREA 5
USE: RESORT TIMESHARE UNITS
AREA: 9.95 AC.
UNIT #: 216
DENSITY: 21.7 UNITS/AC.

PLANNING AREA 6A & 6B
USE: GOLF VIEW CONDOMINIUMS
AREA: 33.2 AC.
UNIT #: 550
DENSITY: 16.6 UNITS/AC.

PLANNING AREA 7
USE: MIX USED RETAIL VILLAGE
AREA: 36.2 AC.
UNIT #: 150
DENSITY: 4.14 UNITS/AC.

PLANNING AREA 8
USE: INDUSTRIAL PARK (RESEARCH & DEVELOPMENT)
AREA: 22.1 AC.

PLANNING AREA 9
USE: EXECUTIVE OFFICE
AREA: 16.0 AC.

PLANNING AREA 10
USE: COMMUNITY COMMERCIAL
AREA: 20.0 AC.

PLANNING AREA 11
USE: ARENA & EVENT CENTER
AREA: 47.5 AC.

CONCEPTUAL LAND USE PLAN

NORTHSTAR
40421.03.000 SPECIFIC PLAN
AMENDMENT NO. 1

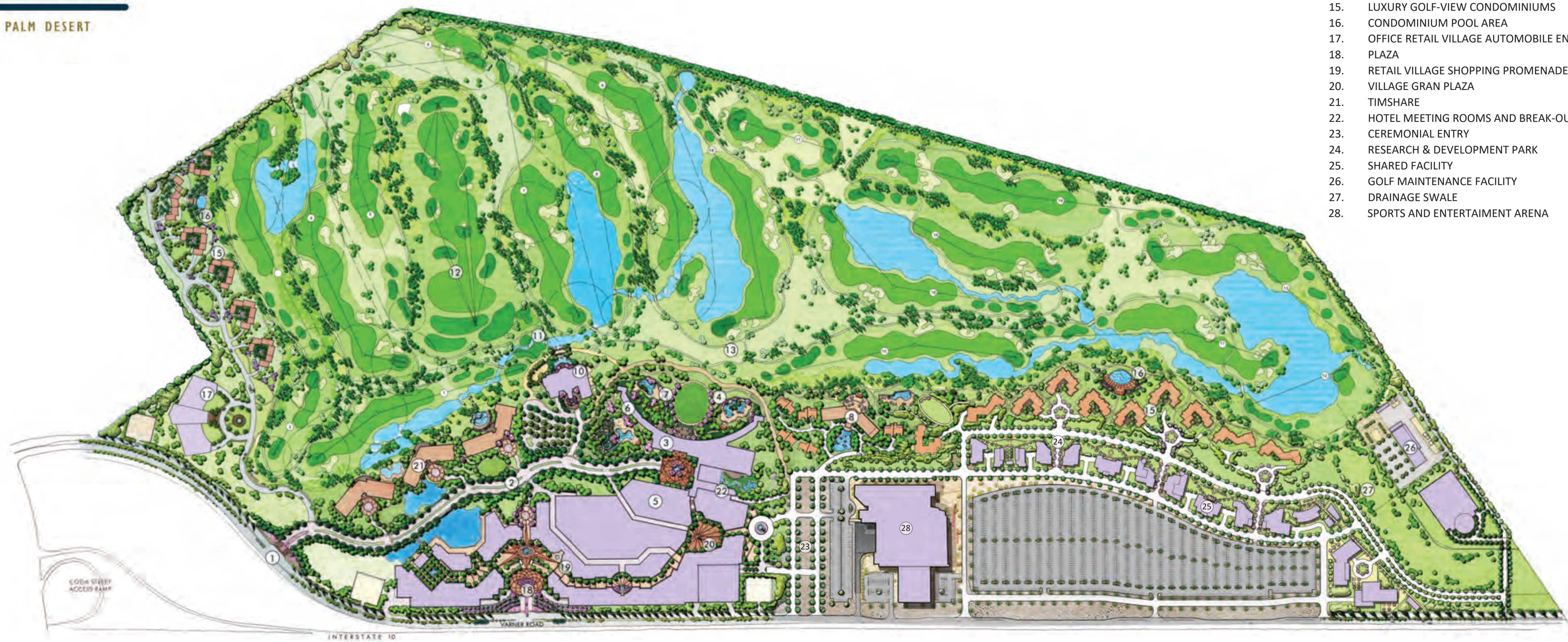
FEET
0 200 400 600

Figure IV-1

Amended Site Circulation Plans

NORTHSTAR

PALM DESERT



KEY TO THE PLAN

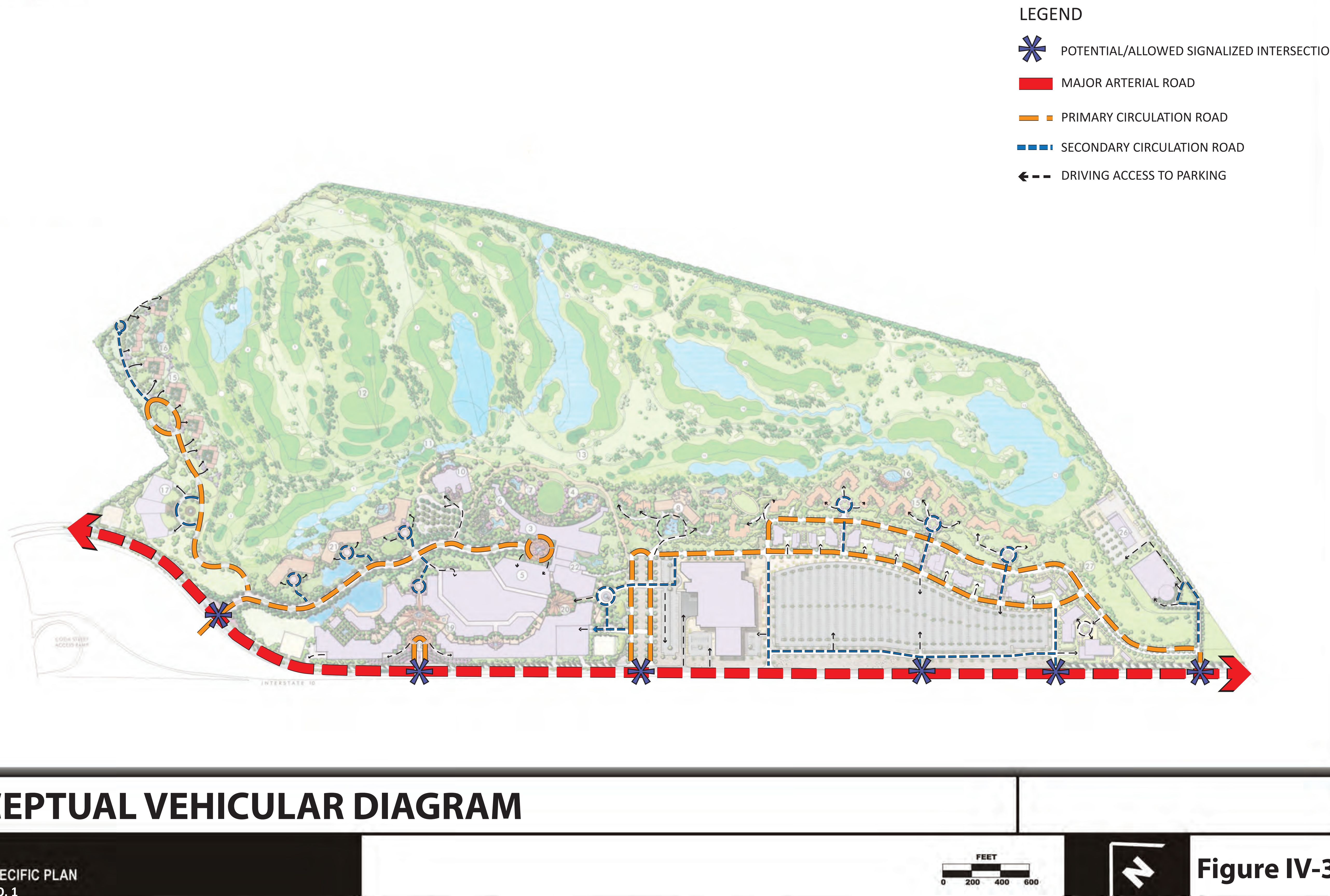
1. RESORT ENTRY GATEWAY
2. RESORT ENTRY DRIVE AND GARDENS
3. RESORT HOTEL
4. HOTEL POOLS AND GARDENS
5. HOTEL PARKING STRUCTURE
6. RESORT SPA
7. SPA, POOL, SUNDECK, AND TREATMENT GARDENS
8. GRAND ESTATE VILLA
9. GOLF VILLAS
10. GOLF CLUBHOUSE
11. PRACTICE PUTTING GREENS
12. TEACHING AND PRACTICE DRIVING RANGE
13. FINISHING HOLES VIEWING STANDS AND SKYBOXES
14. TOURNAMENT ENTRY AREA FROM OFF-SITE PARKING
15. LUXURY GOLF-VIEW CONDOMINIUMS
16. CONDOMINIUM POOL AREA
17. OFFICE RETAIL VILLAGE AUTOMOBILE ENTRY
18. PLAZA
19. RETAIL VILLAGE SHOPPING PROMENADE
20. VILLAGE GRAN PLAZA
21. TIMSHARE
22. HOTEL MEETING ROOMS AND BREAK-OUT COURTYARD
23. CEREMONIAL ENTRY
24. RESEARCH & DEVELOPMENT PARK
25. SHARED FACILITY
26. GOLF MAINTENANCE FACILITY
27. DRAINAGE SWALE
28. SPORTS AND ENTERTAIMENT ARENA

CONCEPTUAL MASTER PLAN

NORTHSTAR
40421.03.000 SPECIFIC PLAN
AMENDMENT NO. 1

FEET
0 200 400 600

Figure IV-2



CONCEPTUAL VEHICULAR DIAGRAM

NORTHSTAR
40421.03.000 SPECIFIC PLAN
AMENDMENT NO. 1

Figure IV-3

CONCEPTUAL PEDESTRIAN CIRCULATION DIAGRAM

NORTHSTAR
40421.03.000 SPECIFIC PLAN
AMENDMENT NO. 1

Figure IV-5

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 3 - Trip Generation

Arena Trip Generation

Trips are estimated for each category of event and for sellout/maximum and average attendance levels. Trip estimates are based on the following input parameters. The derivation of these parameters are explained in detail in the trip generation calculations are included in *Working Paper 2 – Summary of Transportation Analysis Parameters and Estimates*

<u>Patron Trips</u>

Table 3. 1 Mode of Arrival

Mode of Arrival	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Transit	0%	0%	0%	0%	0%	0%
Hotel/Other Shuttle	3%	2%	0%	2%	5%	0%
Walk	0%	0%	0%	0%	0%	0%
Bicycle	0%	0%	0%	0%	0%	0%
Uber/Lyft	5%	5%	3%	5%	5%	0%
Total Auto	92%	93%	97%	93%	90%	100%

Table 3.2 . Auto Occupancy

Vehicle Type	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Auto	2.5	2.5	3.0	2.5	2.5	2.5
Uber/Lyft	2.5	2.5	3.0	2.5	2.5	2.5

Table 3.3. Percent of Trips by Hour

Hour	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
% in Roadway Peak Hour 5-6 PM	20%	20%	20%	20%	20%	0%
% in Pre-Event Hour 6-7 PM	70%	70%	70%	70%	70%	90%
% in Event Starting Hour 7-8PM	10%	10%	10%	10%	10%	10%
% in Post Event Hour	90%	90%	90%	90%	90%	90%

The estimated patron vehicle trips are shown in Table 3.4, by event type and attendance level.

Table 3.4 Arena Patron Auto Trips

Event	Attendance Level	Number of Attendees	Number of Events	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips 5:00 – 6:00pm	Pre-Event Hour Trips 6:00 to 7:00pm	Post-Event Hour Trips[1]
Concert	Sellout	11,000	23	8,536	0	854	2,988	3,841
	Average	7,500	22	6,208	0	621	2,173	2,794
AHL Game	Sell Out	9,918	5	7,776	0	778	2,721	3,499
	Average	7,500	41	5,880	0	588	2,058	2,646
Family	Sellout	5,000	19	3,334	0	333	1,167	1,500
	Average	4,000	19	2,666	0	267	933	1,200
Other Sport	Sellout	10,000	2	8,624	0	862	3,018	3,881
	Average	7,000	8	5,488	0	549	1,921	2,470
Other Various	Sellout	3,000	10	2,280	0	228	798	1,026
	Average	800	10	608	0	61	213	274
G League	Sellout	1,000	1	800	0	0	360	360
	Average	750	24	600	0	0	270	270
Community Ice Use[2]	Note 2	640	Note 2	640	0	80	80	NA

[1] 9:30 – 10:30 for AHL and other events. 11:00 – 12:00 midnite for concerts.
[2] Open for non-community use on non-event days, approximately 135 days a year. See Working Paper 2 for trip calculations.

Employee Trips

There will be both regular employees, and event employees at the arena. On non-event days there will be up to 60 regular employees. On event days, there will be both regular and event employees. The estimated number of employees by event type is shown in Table 3.5.

Table 3.5 Employees – Regular and by Event

Event	*Maximum Event*			*Average Event*		
	Regular	*Event*	*Total*	*Regular*	*Event*	*Total*
Concert	45	125	170	40	75	115
AHL	80	90	170	70	70	140
Family	30	80	110	25	50	75
Other – Sport	40	90	130	25	60	85
Other – Various	40	90	130	10	20	30
G League	25	30	55	20	25	45

For conservative purposes it is assumed that all employees drive, and make two trips a day – to and from work. For Event Days, regular employees will arrive after the AM peak hour, and depart after the PM peak hour. For event employees, none will travel in the AM peak hour. The majority will arrive well before the event start time. Event employees typically arrive about two-and-half hours before the event so it is assumed that event employees would arrive in the 4:00-5:00pm hour, before the PM peak hour. Post-event, it is estimated that about 75% of employees would leave during the hour after the event (the Post-Event hour).

For Non-Event Days, work hours will typically be 9:00/9:30am to 6:00/6:30pm. While these trips will occur outside the roadway peak hours (8-9am and 5-6pm), it has been conservatively assumed that 10% will travel in the 8-9am hour and 10% in the 5-6 pm hour.

Estimated employee trips are shown in Table 3.6.

Total Arena Trips

Total arena trips, including both patron and employee trips, are shown in Table 3.7 by event.

Table 3.6 Employee Trip Estimates

11/12/20

Event	Attendance	Employees			Trips				
		Regular	Event	Total	AM Peak Hour	PM Peak Hour 5 - 6 PM	Pre-Event Hour 6 - 7 PM	Post-Event Hour	Daily
Concert	Sellout	45	125	170	0	0	0	128	340
	Average	40	75	115	0	0	0	86	230
AHL	Sellout	80	90	170	0	0	0	128	340
	Average	70	70	140	0	0	0	105	280
Family	Sellout	30	80	110	0	0	0	83	220
	Average	25	50	75	0	0	0	56	150
Other-Sport	Sellout	40	90	130	0	0	0	98	260
	Average	25	60	85	0	0	0	64	170
Other-Various	Sellout	40	90	130	0	0	0	98	260
	Average	10	20	30	0	0	0	23	60
G-League	Sellout	25	30	55	0	0	0	41	110
	Average	20	25	45	0	0	0	34	90
Non-Event Days		60	0	60	6	6	6	0	120

Notes: See text for explanation of employee working hours.

Post-Event Hour is 9:30-10:30pm for AHL and other events, and 11:00-12:00midnite for concerts.

Table 3.7 - Arena Total Trip Generation Summary

11/12/20

Event Type	Attendance Level	Number of Events	Trip Type	Daily	AM	PM (5:00 - 6:00)	Pre-Event (6:00 - 7:00)	Post Event Hour
Concert Sellout	11,000	23	Patron	8,536	0	854	2,988	3,841
			Employee	340	0	0	0	128
			Total	8,876	0	854	2,988	3,969
Concert Average	7,500	22	Patron	6,208	0	621	2,173	2,794
			Employee	230	0	0	0	86
			Total	6,438	0	621	2,173	2,880
AHL Sellout	9,918	5	Patron	7,776	0	778	2,721	3,499
			Employee	340	0	0	0	128
			Total	8,116	0	778	2,721	3,627
AHL Average	7,500	41	Patron	5,880	0	588	2,058	2,646
			Employee	280	0	0	0	105
			Total	6,160	0	588	2,058	2,751
Family Sellout	5,000	19	Patron	3,334	0	333	1,167	1,500
			Employee	220	0	0	0	83
			Total	3,554	0	333	1,167	1,583
Family Average	4,000	19	Patron	2,666	0	267	933	1,200
			Employee	150	0	0	0	56
			Total	2,816	0	267	933	1,256
Other-Sport Sellout	10,000	2	Patron	8,624	0	862	3,018	3,881
			Employee	260	0	0	0	98
			Total	8,884	0	862	3,018	3,979
Other-Sport Average	7,000	8	Patron	5,488	0	549	1,921	2,470
			Employee	170	0	0	0	64
			Total	5,658	0	549	1,921	2,534
Other-Various Sellout	3,000	10	Patron	2,280	0	228	798	1,026
			Employee	260	0	0	0	98
			Total	2,540	0	228	798	1,124
Other-Various Average	800	10	Patron	608	0	61	213	274
			Employee	60	0	0	0	23
			Total	668	0	61	213	297
G-League Sellout	1,000	1	Patron	800	0	0	360	360
			Employee	110	0	0	0	41
			Total	910	0	0	360	401
G-League Average	750	24	Patron	600	0	0	270	270
			Employee	90	0	0	0	34
			Total	690	0	0	270	304
Non-Event (Community Ice)	NA	135 Days	Patron	640	0	80	80	0
			Employee	120	6	6	6	0
			Total	760	6	86	86	0

Specific Plan Trip Generation

Trip Estimates

Trip estimates for the Specific Plan Amendment include both Arena trips, and updates to the other Specific Plan land uses. The Specific Plan Amendment proposes the introduction of a new Planning Area 11 for the proposed arena, and the reconfiguration of the boundaries for Planning Areas 4, 6B, 7 and 8 in order to accommodate the new Planning Area 11 (see Attachment 2). The land use quantities remain the same for all Planning Areas except for Planning Area 8. Because Planning Area 8 has been reduced in size to accommodate the arena, the square footage of Industrial Park land uses has been reduced from 1,200,000 sq. ft. to 381,035 sq. ft. The updated trip estimates included this new quantity.

The updated trip estimates for the Amendment also use updated trip generation rates for the Specific Plan land uses. The 2005 Specific Plan EIR Traffic Study, conducted fifteen years ago, used ITE 7th Edition trip rates. Since that time, ITE has updated its trip rate database three times and the current version is the ITE 10th Edition. This latest edition is a comprehensive update that has includes many trip generation information updates, and is now the industry standard for trip estimation. The ITE 10th Edition trip rates were therefore used in the updated trip analysis for the Specific Plan. The updated trip totals are calculated in *Working Paper 3 – Specific Plan Trip Analysis*.

Trip Comparison – Approved Specific Plan and Specific Plan Amendment

Trip estimates for the arena were then added to the trips estimated for the Specific Plan land uses, to obtain new updated trip totals for the Proposed Specific Plan Amendment. The arena is a unique land use that will cater to varying types and sizes of events, and will not be in operation all the time (approximately 181 days of the year). This compares to the industrial park land use that will be replaced that would have been in operation daily throughout the year.

The analysis is summarized in Table 3.8. Trips have been calculated for daily, AM peak and PM peak hour periods. As the arena is a unique land use, and will cater to varying types and sizes of events, the trip comparison is shown for each event type and for sellout and average attendance levels. About 184 events are projected, so there will be 181 days of the year when there will be no events. In 135 of these 181 non-event days the training ice rink will be open to the community as a community ice facility.

Table 3.8,shows that the 2006 Specific Plan EIR identified Specific Plan trip totals of 38,721 daily, 2,201 AM peak hour, and 3,820 PM peak hour trips[1]. Table 3.8 also shows that in most all cases

---

[1] County of Riverside, Planning Department, *NorthStar Specific Plan No. 343 and Final Environmental Impact Report No. 470,* prep. by Stantec/The Keith Companies (March 2006).

(for all event types and for daily, AM peak hour and PM peak hour), total trips under the Proposed Amendment would be less than the total trips identified in the 2006 Specific Plan EIR.

For two event types the Amended Plan daily trips would be slightly higher than the 2006 EIR. The daily trips for days with sellout concerts events would be 0.1% higher with the Amended Specific Plan. However, this would occur only 23 days of the year. The AM and PM peak hour trip totals for this event type would be lower than the Adopted Specific Plan.

The daily trips for days with sellout Other – Sport events would also be 0.1% higher with the Amended Specific Plan. This would occur only 2 days of the year. The AM and PM peak hour trip totals for this event type would be lower than the Adopted Specific Plan.

For all other events, and non-event days, the Amended Specific Plan trips will lower than the Adopted Plan trip totals – a total of 340 days a year.

The Proposed Specific Plan Amendment would not lead to a substantial increase in the number of trips previously analyzed in the 2006 Specific Plan EIR for the Adopted Specific Plan.

Table 3.8 - Amended Specific Plan - Trip Generation Comparison

10/27/20

Scenario	Event	Attendance	Number of Events	Trips Generated Daily	Trips Generated AM	Trips Generated PM
2006 SP/EIR Land Use[1]	NA	NA	NA	38,721	2,201	3,820
Amended Land Use[2]	Concert	Sellout	23	38,767	1,342	3,652
		Average	22	36,329	1,342	3,419
		Weighted Mean		37,575	1,342	3,538
	AHL	Sellout	5	38,007	1,342	3,576
		Average	41	36,051	1,342	3,386
		Weighted Mean		36,264	1,342	3,407
	Family	Sellout	19	33,445	1,342	3,131
		Average	19	32,707	1,342	3,065
		Weighted Mean		33,076	1,342	3,098
	Other-Sport	Sellout	2	38,775	1,342	3,660
		Average	8	35,549	1,342	3,347
		Weighted Mean		36,194	1,342	3,410
	Other-Various	Sellout	10	32,431	1,342	3,026
		Average	10	30,559	1,342	2,859
		Weighted Mean		31,495	1,342	2,943
	G League	Sellout	1	30,801	1,342	2,798
		Average	24	30,581	1,342	2,798
		Weighted Mean		30,590	1,342	2,798
	Non-Event (Community Ice)		135	30,651	1,348	2,884

Notes:

[1]County of Riverside NorthStar (SP 343) Traffic/Parking Analysis, Kunzman Associates, June 13, 2005.

[2]See tables B-1 to H-1.

F:\Projects 2020\Coachella Valley Arena\Scoping Agreement\11-12-20\[Table 3.8 - Specific Plan Trip Generation Comparison - 10-27-20 Rev 11-14-20.xlsx]Table 3.1

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 4 - Land Use & Zoning Information

Current GP Land Use: Western Coachella Valley Area Plan – Business Park (Planning Area 8)

Current Zoning: SP-343 NorthStar Specific Plan

Proposed GP Land Use: Western Coachella Valley Area Plan – Commercial Tourist

Proposed Zoning: SP-343 NorthStar Specific Plan – Planning Area 11 (Arena and Event Venue)

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 5 - Analysis Scenarios

Analysis Years/Scenarios

The Transportation Study will analyze the following scenarios:

Existing Conditions, 2020

Existing + Ambient + Project Conditions, 2023

Existing + Ambient + Project + Cumulative Conditions, 2023

This addresses opening day for the arena, and meets the requirement of the Specific Plan to analyze each individual project phase.

It allows determination of which, if any, of the Specific Plan roadway improvements should be attributable to the Arena Project.

Analysis Time Periods

<u>For Purposes of Evaluating General Plan Consistency and Comparison to the 2006 EIR TS.</u>

The Traffic Operations Study will address:

Weekday PM Peak Hour (5-6pm)

Consistent with 2006 EIR TS PM peak hour analysis.
Consistent with analysis of 2006 SP land uses
Consistent with general methodology for traffic studies.

An AM Peak Hour analysis is not necessary for an event facility as there are negligible trips in that time period (see Attachment 3).

Event Scenario to be Analyzed

The PM peak hour analysis will address:

> Average AHL Event, 7,500 attendance.
>
> The Average AHL Event covers 80% of all events. See Table 5.1 which shows the cumulative totals by attendance level.
> It is conservatively consistent with traffic studies which use average trips.

<u>For Purposes of Addressing a Transportation Management Plan</u>

The highest arena trips occur in the Pre-Event and Post-Event hours. Traffic operations for these hours for entertainment facilities like arenas and sports stadiums are most typically addressed with Transportation Management Plans – which contain temporary operational measures to efficiently facilitate the traffic flows.

For purposed of facilitating preparation of a TMP, the traffic analysis will address the:

Pre-Event Hour (6-7pm)
Post Event Hour (9:30 – 10:30pm for Average AHL, and 11:00 to 12:00pm for Sellout concert)

Not all event types and/or attendance levels will need the same level of TMP measures.

The study anticipates that a TMP will address three activity levels, as follows:

Level 3:	> 8,000 Attendance	Sellout Concert & AHL Game 20% of all events Analyze Sellout 11,000 Concert
Level 2:	5,000 to 8,000	Average Concert & AHL Game 45% of all events Analyze Average 7,500 Concert & AHL (Note: No events > 7,500 in the 7,000 to 8,000 range on event schedule)
Level 3:	< 5,000	All remaining events, max. & average. 35% of all events No analysis, qualitative adjust to Level 2 TMP

Notes. The percentages exclude G League games – which have very small attendance.

TMP Analysis Scenarios

The following scenarios will be addressed:

Weekday Pre-Event Hour	Level 3 - Sellout Concert,	11,000
Weekday Pre-Event Hour	Level 2 - Average AHL	7,500
Weekday Post-Event Hour	Level 3 - Sellout Concert	11,000
Weekday Post-Event Hour	Level 2 - Average AHL	7,500
Saturday Pre-Event Hour	Level 3 – Sellout Concert	11,000
Saturday Pre-Event Hour	Level 2 - Average AHL	7,500
Saturday Post Event Hour	Level 3 – Sellout Concert	11,000
Saturday Post Event Hour	Level 2 – Average AHL	7,500

We anticipate to conduct quantitative LOS analysis for Sellout Concert first and review results, and TMP needs. We will then conduct LOS analysis for Average AHL Game if necessary. Or the TMP could be adjusted qualitatively.

Note1: The above methodology is an estimate. Actual results of the analysis could justify refinement/medication of the methodology, providing an efficient and comprehensive TMP outline is identified.

Note 2: It is not expected that the Transportation Study will prepare a detailed TMP. That is most appropriately completed closer to opening day of the arena, in order to reflect the most recent conditions, and allow coordination between agencies. Rather the Transportation Study will provide an outline of potential TMP measures, based on the quantitative analysis.

Table 5.1 Riverside County Arena - Attendance Range - Events by Attendance 11/2/20

Range	Concert	AHL	Family	Other Sport	Other Various	Total	%	Cum Number	Cum %	TMP / Analysis Thresholds
< 1,000					10	10	6%	10	6%	
1,000 to 2,000						0	0%	10	6%	
2,001 to 3,000					10	10	6%	20	13%	
3,001 to 4,000						0	0%	20	13%	
4,001 to 5,000			38			38	24%	58	36%	< 5,000 : Family & Other Various
5,001 to 6,000						0	0%	58	36%	
6,001 to 7,000				8		8	5%	66	42%	
7,001 to 8,000	22	41				63	40%	129	81%	5,000 - 8,000 : Average AHL & Concert
8,001 to 9,000						0	0%	129	81%	
9,001 to 10,000		5				5	3%	134	84%	
10,001 to 11,000	23			2		25	16%	159	100%	> 8,000 : Sellout Concert, AHL and Other Sport
Total	45	46	38	10	20	159	100%			

Note: Excludes G League - 750 to 1,000 attendance per game.

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 6 - Project Trip Distribution

Trip Distribution

The derivation of trip distribution is explained in detail in Working Paper 4 – Arena Trip Distribution.

Figure 6.1 shows the general distribution of Project trips for the PM peak hour (AHL Game).

Figure 6.2 show the detailed distribution of project trips at study intersections (see also Attachment 7).

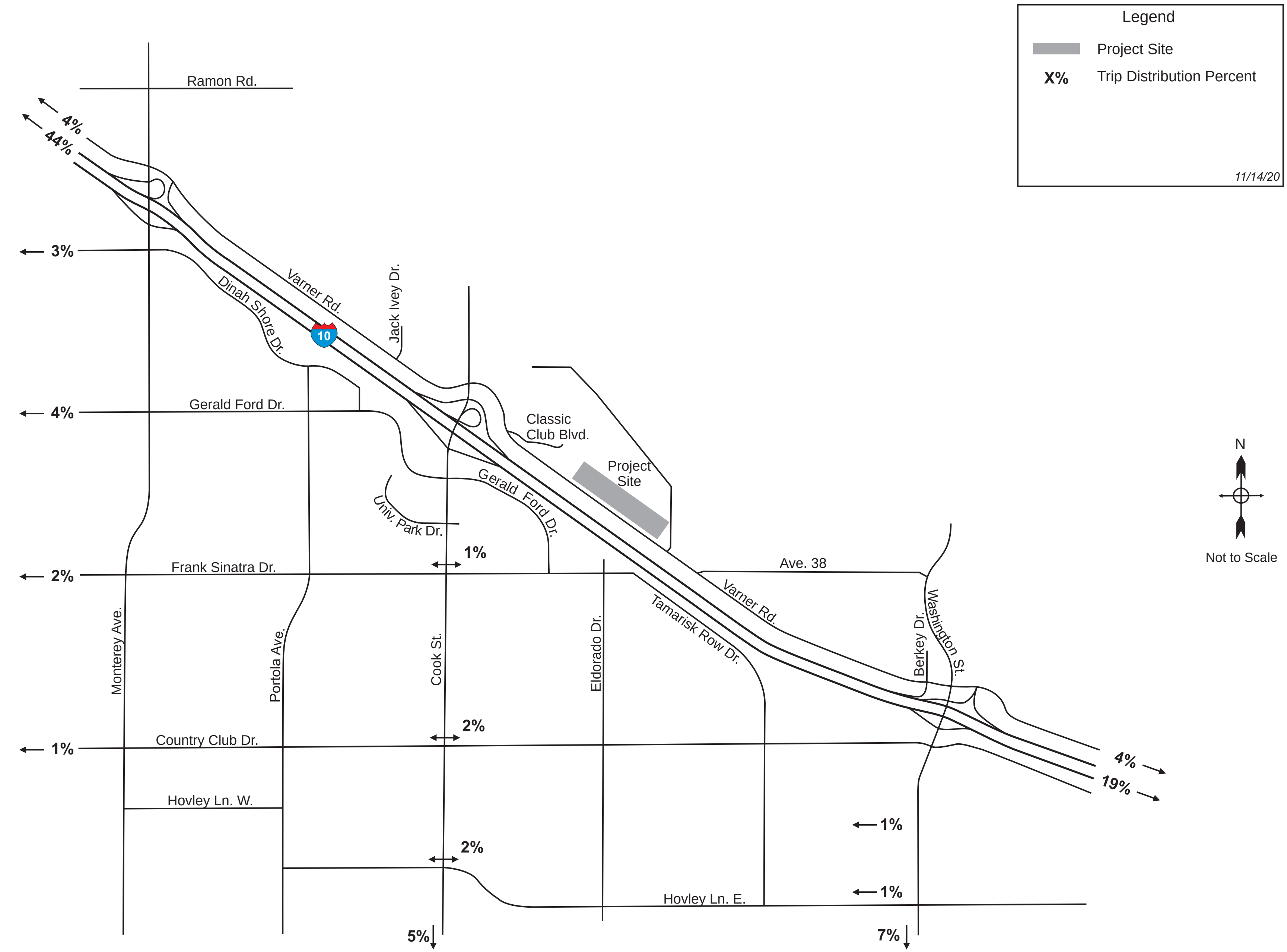


Figure 6-1
General Project Trip Distribution

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

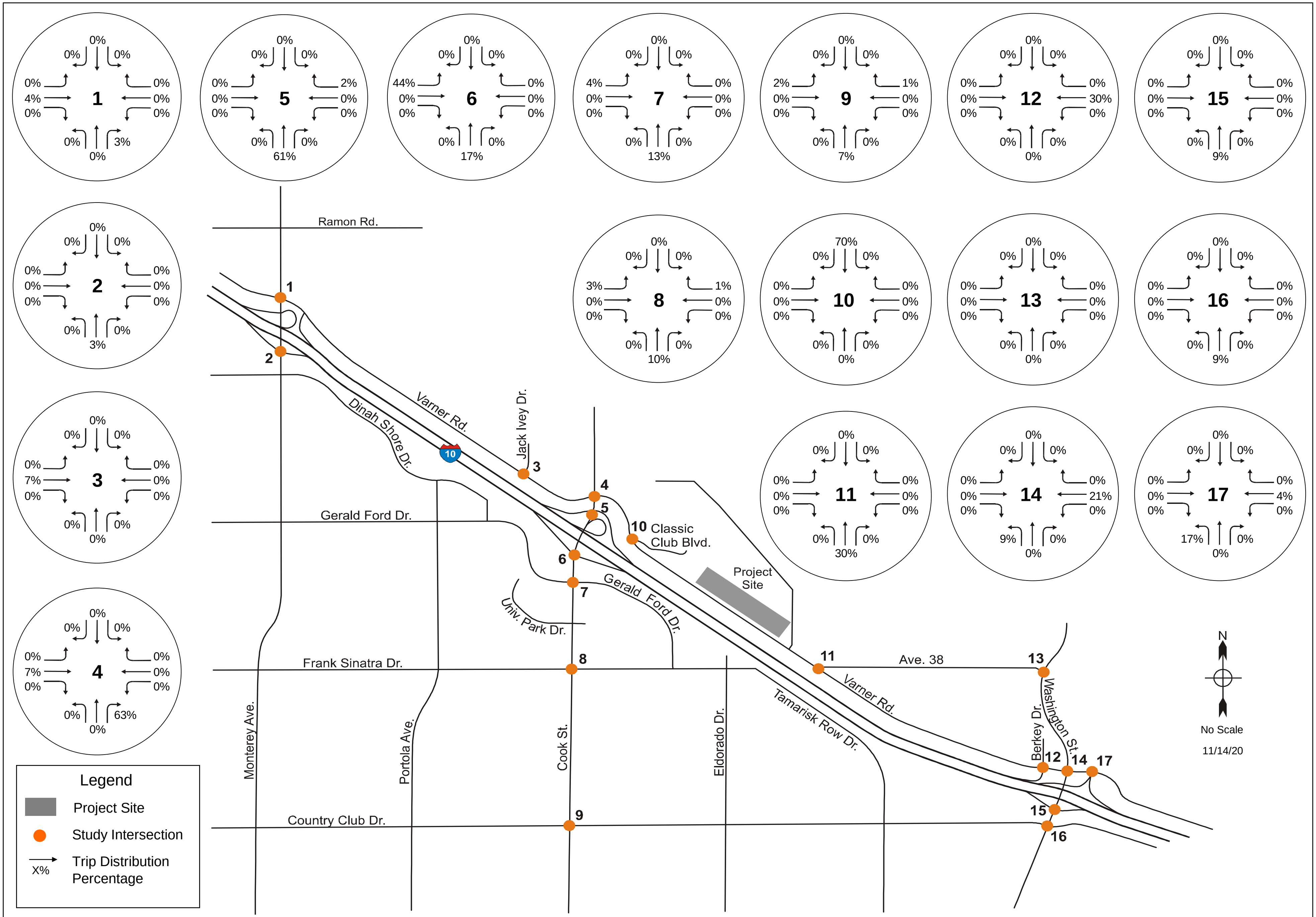


Figure 6-2
Trip Distribution Percentages at Study Intersections

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

Riverside County Arena
NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 7 - Analysis Locations

Intersection analysis locations were determined by:

All intersections analyzed in the 2006 Specific Plan EIR Traffic Study
Additional intersections with 50 or more peak hour project trips.

The following intersections will be analyzed. See Figure 7.1

1. Monterey Avenue & Varner Road	In 2006 EIR
[Monterey Avenue & I-10 WB Ramps	In 2006 EIR – no longer exists]
2. Monterrey Avenue & I-10 EB Ramps	In 2006 EIR
3. Varner Road & Jack Ivy Drive	In 2006 EIR
4. Cook Street & Varner Road	In 2006 EIR
5. Cook Street & I-10 WB Ramps	In 2006 EIR
6. Cook Street & I-10 EB Ramps	In 2006 EIR
7. Cook Street & Gerald Ford Drive	In 2006 EIR
8. Cook Street & Frank Sinatra Drive	Additional to 2006 EIR
9. Cook Street & Country Club Drive	Additional to 2006 EIR
10. Varner Road & Classic Club Boulevard	In 2006 EIR
11. Varner Road & Avenue 38	Additional to 2006 EIR
12. Varner Road & Berkey Drive	In 2006 EIR
13. Washington Street & Avenue 38	In 2006 EIR
14. Washington Street & Varner Road	In 2006 EIR
15. Washington Street & I-10 EB Ramps	In 2006 EIR
16. Washington Street & Country Club Drive	Additional to 2006 EIR
17. Varner Road & I-10 WB Ramps	In 2006 EIR

Plus Specific Plan Driveways:

Driveway 1	West.	PA 7	Signal
Driveway 2	West Arena		Signal
Driveway 3	Arena Parking		
Driveway 4	Arena Parking		
Driveway 5	Arena Parking		
Driveway 6	East	PA 8	Signal

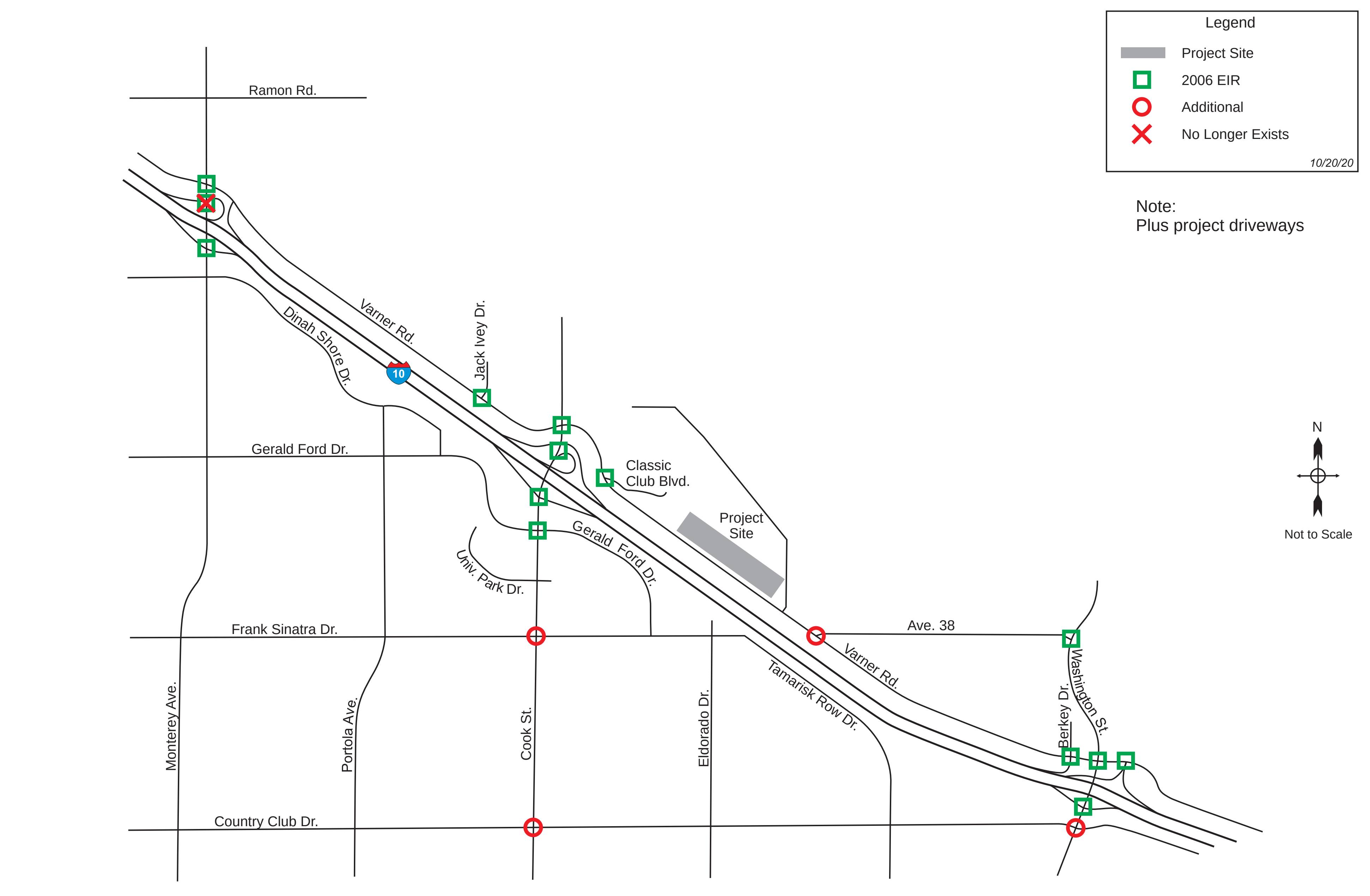


Figure 7-1
Intersection Analysis Locations - PM Peak Hour

Riverside County Arena

The **Mobility** Group
Transportation Strategies & Solutions

Freeway study locations were determined based on the approach and departure routes of project traffic and off-ramps and on-ramps that would be used by project traffic.

The following freeway locations will be analyzed. See also Figure 7.2.

Freeway Segments:	I-10 west of Cook Street I-10 east of Cook Street I-10 east of Washington Street
Off-Ramps:	I-10 EB Off-ramp at Cook Street I-10 WB Off-ramp at Cook Street I-10 WB Off-ramp at Washington Street
Merge/Diverge Weave-Merge Areas:	I-10 EB off-ramp at Cook Street (diverge) I-10 WB on-ramp at Cook Street (merge) I-10 WB off-ramp at Cook Street (diverge) I-10 EB on-ramp at Cook Street (merge) I-10 WB off-ramp at Washington Street (diverge) I-10 EB on-ramp at Washington Street (merge)

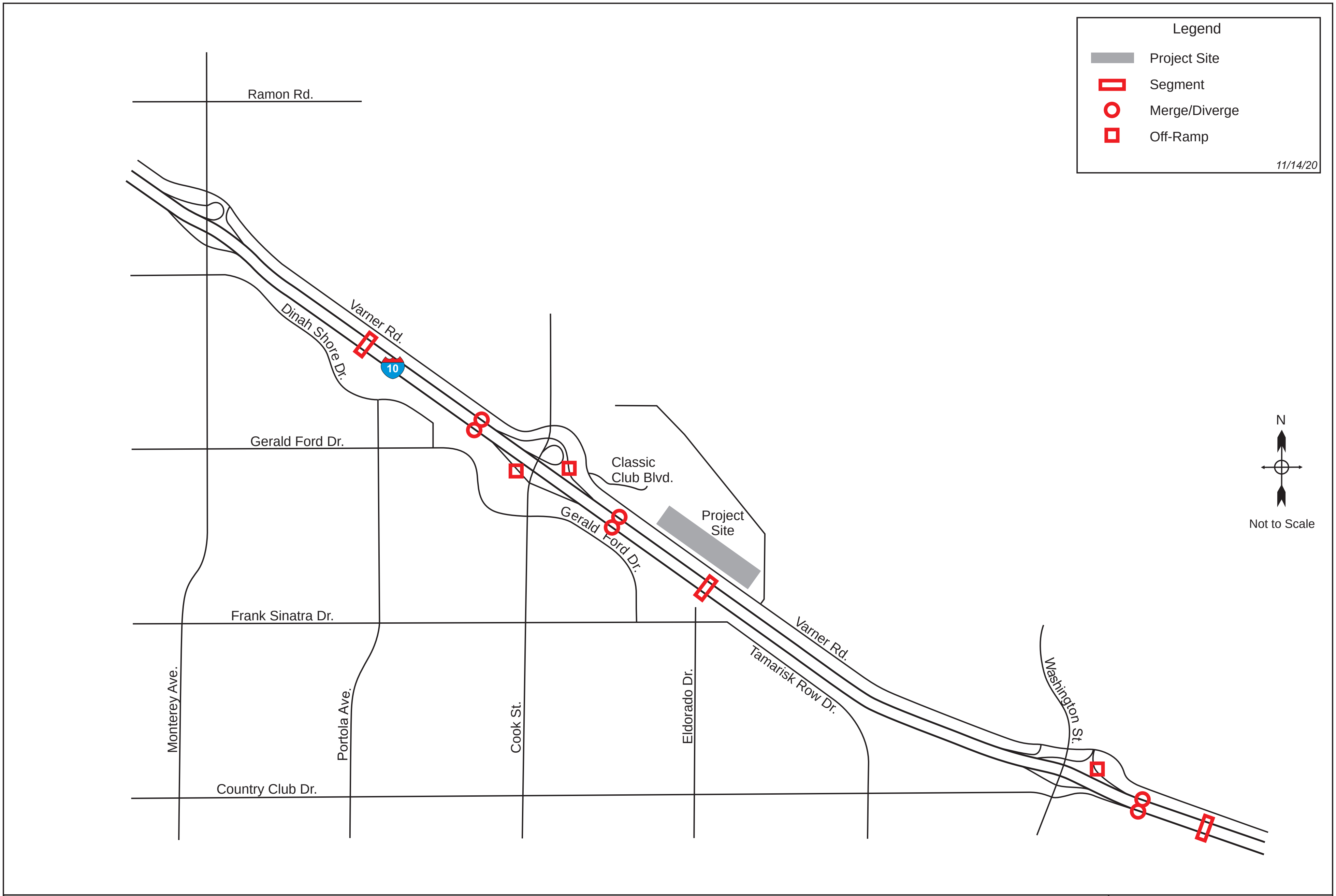


Figure 7-2
Freeway Analysis Locations

Riverside County Arena

The Mobility Group
Transportation Strategies & Solutions

Riverside County Arena

NorthStar Specific Plan (SP-343) Amendment

Transportation Study Scoping Agreement

Attachment 8 - Related Projects List

Related Projects

A related projects list is in preparation. It will be prepared based on information provided by the County of Riverside and the City of Palm Desert.

Related Projects List

Related Projects Map

APPENDIX F2

VMT Analysis Memo

FEHR & PEERS

Memorandum

Date: March 12, 2021

To: Tony Locacciato, Meridian Consultants

From: Paul Herrmann, P.E.
Biling Liu

Subject: NorthStar Specific Plan EIR Addendum Vehicles Miles Traveled (VMT) Analysis Memo

OC20-0766

Fehr & Peers has completed quantifying Vehicle Miles Traveled (VMT) for the NorthStar Specific Plan EIR Addendum (Project). The Project is proposing an amendment to the adopted NorthStar Specific Plan located in Western Coachella Valley within an unincorporated portion of Riverside County, California. The Specific Plan Amendment would reduce Planning Area 8 and make minor adjustments to the boundaries of adjacent planning areas within the NorthStar Specific Plan in order to accommodate the addition of Planning Area 11, which would replace approximately 819 KSF of industrial park with the development of a new sports and concerts event arena. This assessment compares VMT generated by the proposed Specific Plan Amendment land uses to VMT generated by the previously adopted Specific Plan land uses to measure if the Specific Plan Amendment would result in a significant increase in VMT. This VMT analysis is consistent with requirements of Senate Bill 743 (SB 743), the Office of Planning and Research's (OPR's) Technical Advisory, and the *Riverside County Transportation Analysis Guidelines for Vehicle Miles Traveled (December 2020)*.

The remainder of this memorandum is divided into six sections: Project Introduction, Analysis Methodology, Modeling Methodology, Modeling Sensitivity Test, VMT Analysis, and Conclusions.

1. Project Introduction

The project site is located north of I-10 and adjacent to the Cook Street interchange. The Project is bounded by Cook Street to west and Varner Road to south, which provides access directly to the site. **Table 1** details the project description for the adopted NorthStar Specific Plan and the Proposed NorthStar Specific Plan Amendment. The difference is that Proposed Project replaces 819 KSF of industrial park with a 260 KSF

Arena and Event Center with 35 KSF of training facilities for an American Hockey League (AHL) team. The arena will be primarily used for the AHL events with a capacity of 9,918 patrons but will also host other events such as concerts with a maximum capacity of 11,000 patrons and occasional events (up to twice a year) with a maximum capacity of 11,700 patrons.

Table 1
Project Land Use Descriptions

Land Use Description	Adopted NorthStar Specific Plan		Proposed NorthStar Specific Plan Amendment	
	Quantity	Units	Quantity	Units
18-Hole Golf Course	240	Acres	240	Acres
Hotel	350	Rooms	350	Rooms
Multi-Family Units/Condos	754	D.U.s	754	D.U.s
Timeshare Units	216	D.U.s	216	D.U.s
Commercial/Retail	500	KSF	500	KSF
Office Space	230	KSF	230	KSF
Industrial Park	1,200	KSF	381	KSF
Event Arena	-	-	295	KSF

Notes:
1. D.U.s = Dwelling Units, KSF = Thousand Square Feet.

Sources:
1. *NorthStar (Palm Desert Resort) Specific Plan Project Summary, 2006*
2. *NorthStar (Palm Desert Resort) Specific Plan Project Summary, 2020*

2. Analysis Methodology

In consultation with the County of Riverside, *Riverside County Transportation Analysis Guidelines for Vehicle Miles Traveled (December 2020)* was utilized to perform the VMT Assessment. Per the guidelines, projects such as the Proposed Project are required to utilize either (1) the Riverside County Sketch Planning Tool or (2) RIVTAM/RIVCOM[1] or other approved travel demand forecasting model to conduct detailed VMT assessment. RIVTAM[2] is considered the most appropriate tool to analyze a project as large and complex as the Proposed Project.

RIVTAM is appropriate for use to estimate VMT for all of the land uses proposed by the Project except for the event arena; RIVTAM is utilized to estimate typical weekday trip behavior and is not sensitive to land

[1] Riverside County Transportation Analysis Model (RIVTAM) was originally developed to be consistent with the 2008 SCAG RTP/SCS and Riverside County Model (RIVCOM) is currently under development and will be consistent with the 2020 SCAG RTP/SCS.

[2] RIVCOM is anticipated to be completed in Summer 2021 and is not ready for use in this assessment.

uses such as event arenas. Per direction from the County of Riverside, this assessment utilizes RIVTAM to estimate VMT for all appropriate land uses and adds off-model VMT estimates[3] for the arena during post-processing of the model data. The off-model VMT estimates referenced market information and expectations of participant locations provided by the project sponsor[4] to estimate trip origins, destinations, and travel paths. Given the different methodologies used to estimate VMT, the County of Riverside requested that a model sensitivity test be performed to verify that the model would assign traffic in a similar manner as the off-model estimates.

3. Modeling Methodology

The latest version of RIVTAM was used to estimate Project VMT. The following modeling parameters, consistent with the RIVTAM model development report[5] were used in the assessment:

- The RIVTAM roadway network and land use data sets were updated to be consistent with the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) with a base year of 2012 and future year of 2040[6]
- The population, household and employment inputs were updated in the Socio-Economic Data (SED), truck and Coachella Valley Association of Governments (CVAG) module input files to represent the Project
- RIVTAM assignment parameters were set to run up-to five loops with a minimum convergence criteria[7] of 0.01
- RIVTAM model runs included the CVAG module enabled. The CVAG module simulates the unique trip making characteristics of the Coachella Valley in terms of visitors and part-time residents

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[3] Riverside County Arena Transportation Analysis Vehicle Miles Travelled (VMT) Analysis, The Mobility Group (2020)

[4] Riverside County Arena Transportation Analysis Patron Trip Distribution, The Mobility Group (2020).

[5] Riverside County Transportation Analysis Model (RIVTAM) Model Development & Validation Report and Users Guide (February 2009)

[6] Please note that SCAG adopted the 2020 RTP/SCS in Fall of 2020; however, land use data for use in RIVTAM is not available at the time of this assessment; this assessment utilizes the latest information available consistent with the 2016 RTP/SCS.

[7] Convergence criteria refers to the acceptable difference in the traffic volumes produced by different loops of the vehicle assignment. A convergence criteria of 0.01 indicates that the model is producing similar outputs with an allowance of 1% difference between each loop. This criteria is outlined in the model documentation as the recommended convergence criteria for the model.

Figure 1 presents the Traffic Analysis Zone (TAZ) structure and model roadway network at the project location in RIVTAM.

4. Model Sensitivity Test

The Mobility Group prepared VMT estimates for the arena by event type and attendance level, including both patron and employee trips. Origin-destination (OD) and trip distribution assumptions were derived from the arena's market information and expectations by event type. The trips from 30 jurisdictions were estimated and multiplied by the round-trip length measured from Google Maps to forecast total VMT for each event day and event type. The individual day VMT was then multiplied by the numbers of each event occurring each year to forecast annual VMT.

Fehr & Peers reviewed RIVTAM to verify that the travel demand model would assign trips in a similar fashion to The Mobility Group's off-model trip assignment paths. For testing purpose, the hockey game patron scenario was selected and ran in the RIVTAM base year (2012) model. The sell-out scenario trips were hard coded into the RIVTAM OD table to represent the origins and destinations identified by The Mobility Group. The inbound trips were run in the PM Peak period (4PM-7PM) and outbound trips were run in the Night period (7PM-6AM). Select zone analysis was performed based on the traffic assignment to show the multiple routes and volumes given the congested roadway network. **Figure 2** shows full route options while **Figure 3** presents the bandwidth plot of volume of traffic that used each route in PM peak period.

The model trips and VMT estimates are summarized and compared to The Mobility Group's estimation in **Table 2**. The trips produced by the model vary from The Mobility Group's estimates by two trips due to rounding. VMT was calculated by multiplying link volume and link length in the model. The resulting model VMT estimated is within 1% of The Mobility Group's estimates. The model assignment routes are nearly identical to routes chosen by The Mobility Group.

It should be noted that a major factor in the VMT estimates was related to centroid loading location. We modified the project TAZ centroid location in RIVTAM that most accurately represented the project access point. The default large TAZ, centroid lengths and loading position assumed in RIVTAM resulted in VMT estimates that were approximately 3% higher than the final estimate. After the modification, the VMT difference is only 0.29% from The Mobility Group estimates.

Table 2
Hockey Sellout Event Patron Trip and VMT Comparison

Method	Total Trips	Total VMT
RIVTAM	7,778	175,360
The Mobility Group	7,776	174,861
Difference	**2**	**499**
Percentage Difference	**0.03%**	**0.29%**

Source: RIVTAM, 2021

Since the model VMT estimates are within a 1% margin of the off-model estimates, we have concluded that RIVTAM would assign traffic in a similar manner as the Mobility assumed in their calculations and therefore their study estimates are acceptable to include in calculations in this study.

5. VMT Assessment

Project-level VMT estimates for the two specific plan alternatives were performed using the base year (2012) in RIVTAM using the SED input data shown in **Table 3**. TAZs near the project were referenced to estimate persons per household assumptions for the Project. Land use was coded into a separate TAZ to represent the Project, except for the event arena which was added to the VMT estimates during postprocessing of the model data. TAZ centroid loadings were reviewed for consistency with the Project. The VMT estimates were performed using link-based VMT obtained from select zone analysis of the project TAZ.

Table 3
RIVTAM SED Inputs

SED[2]	Adopted NorthStar Specific Plan	Proposed NorthStar Specific Plan Amendment
Population	**1,898**	**1,898**
Full-time Residents	1,475	1,475
Part-time Residents	423	423
Total Households	**970**	**970**
Regular Households	754	754
Timeshare Units	216	216
Hotel Rooms	**350**	**350**
Golf Course Acreage	**240**	**240**
Total Employees	**4,762**	**3,135**
Retail Employees	1,461	1,461
Office Employees	893	893
Industrial Employees	2,408	781
Event Arena[1]	0	1

Notes:
1. The event arena was not input into RIVTAM and off-model VMT estimates were added to the Proposed NorthStar Specific Plan Amendment estimates during post-processing.
2. Full-time residents, part-time residents, timeshare units, hotel rooms, and golf courses are inputs for the CVAG module.

Sources:
1. *NorthStar (Palm Desert Resort) Specific Plan Project Summary, 2006*
2. *NorthStar (Palm Desert Resort) Specific Plan Project Summary, 2020*
3. *Fehr & Peers, 2021*

The Proposed Specific Plan Amendment scenario model run did not include inputs for the arena since RIVTAM is designed to forecast standard weekday trip making behavior and doesn't include specific parameters to estimate event trips. Arena VMT was added to the model VMT estimates during post-processing of the model data.

Since the arena events vary in size, vary in type of event, and events only occur on 180 days out of the year, the model daily project-level VMT estimates were annualized in order to effectively compare the specific plan alternatives. Estimates performed using RIVTAM represent a typical weekday, so the weekday VMT estimate was factored based on ITE Trip Generation estimates to represent a typical Saturday and Sunday. The trip generation estimates do not account for internalization between uses and are therefore considered conservative. The 365-day year VMT forecast was calculated as 52 Saturdays, 52 Sundays and 261 Weekdays. Trip generation estimates for the Adopted and Proposed Specific Plan Amendment scenarios are provided in **Attachment A** and summarized in **Table 4** to show how factors were generated. Annualized VMT estimates are shown in **Table 5**. As shown, the proposed project is forecast to generate approximately 0.3%

more VMT annually as compared to the adopted specific plan.

Table 4
ITE Trip Generation and Weekend VMT Factors

Scenarios	Adopted NorthStar Specific Plan	Proposed NorthStar Specific Plan Amendment
Daily (Weekday) Trip Generation	33,998	31,238
Saturday Trip Generation	34,642	32,562
Sunday Trip Generation	18,632	17,616
Saturday VMT Factor	1.02	1.04
Sunday VMT Factor	0.55	0.56

Source:
1. Trip Generation, 10th Edition, Institute of Transportation Engineers (2017)

Table 5
Annual VMT Forecasts

Scenarios	Adopted NorthStar Specific Plan	Proposed NorthStar Specific Plan Amendment
Daily (Weekday) VMT	385,594	322,850
Adjusted Saturday VMT	392,898	336,533
Adjusted Sunday VMT	211,318	182,064
Annual VMT Subtotal[1]	**132,059,266**	**111,230,894**
Annual Arena VMT[2]	n/a	21,232,770
Total Annual VMT	**132,059,266**	**132,463,664**

Notes:
1. Annual VMT forecast calculated as 52 Saturdays, 52 Sundays and 261 Weekdays.
2. The G-League VMT was removed from the total annual VMT estimate as it is no longer included in the project description. Non-event VMT was factored up to account for 25 G-League events that were removed.

Sources:
1. RIVTAM, 2021
2. Riverside County Arena Transportation Analysis Vehicle Miles Travelled (VMT) Analysis, The Mobility Group (2020)

6. Conclusions

The proposed project is mixed-use with a unique arena component. RIVTAM, ITE trip generation rates, and off-model VMT estimates were utilized to estimate annual VMT for the proposed project and compare back to the previously adopted Specific Plan. The annualized VMT estimates between the two projects are within 1% of each other.

Attachments

Figure 1 – Project TAZ Location in RIVTAM

Figure 2 – RIVTAM Travel Routes

Figure 3 – RIVTAM PM Period Select Zone Traffic Assignment Bandwidth Plot

Attachment A – Adopted and Proposed Specific Plan Trip Generation Estimates (Weekday, Saturday & Sunday)

Attachment B – Riverside County Arena Transportation Analysis Vehicle Miles Travelled (VMT) Analysis, The Mobility Group (2020)

Attachment C – Riverside County Arena Transportation Analysis Patron Trip Distribution, The Mobility Group (2020)

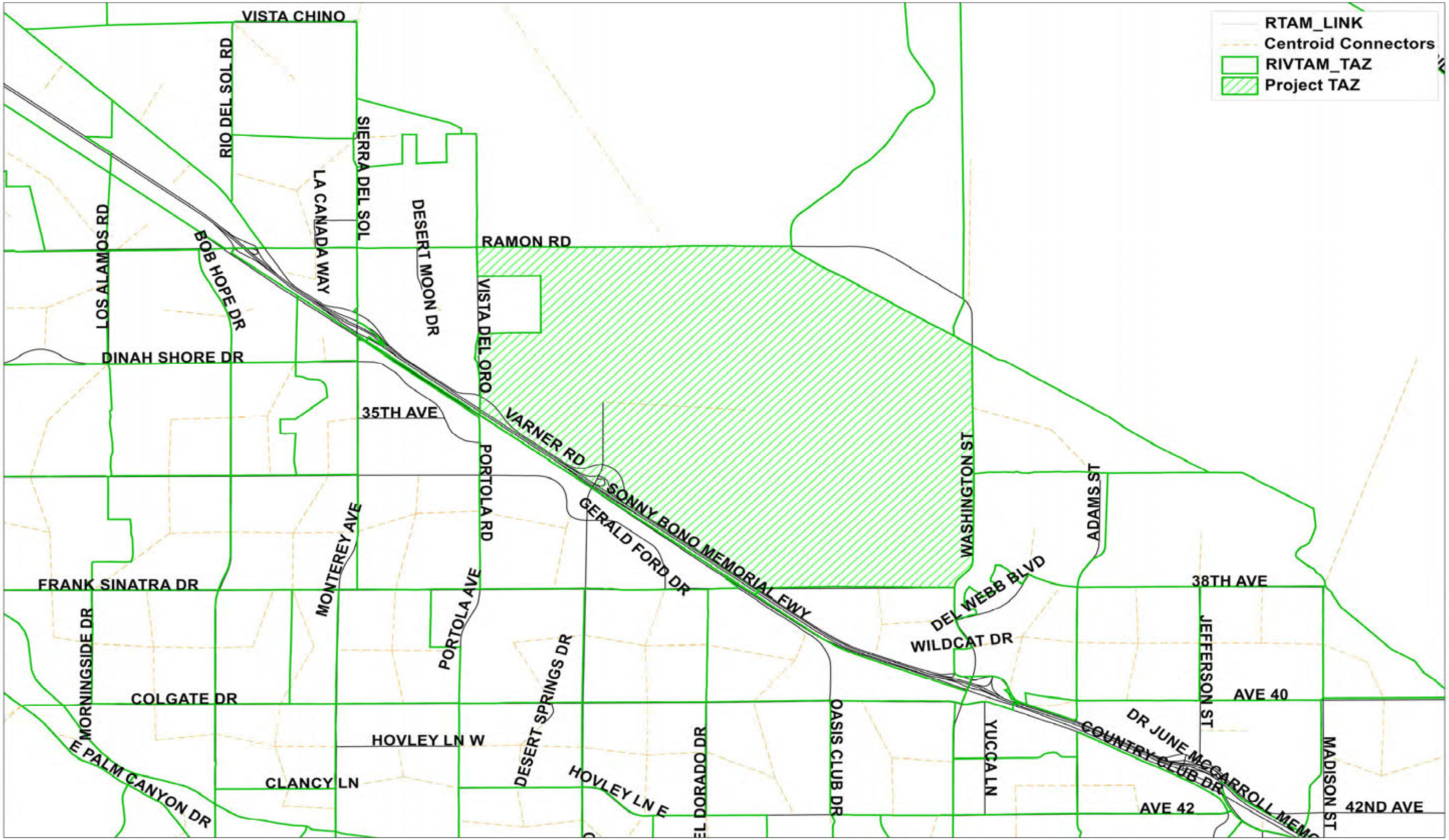

Figure 1

Project TAZ Location in RIVTAM

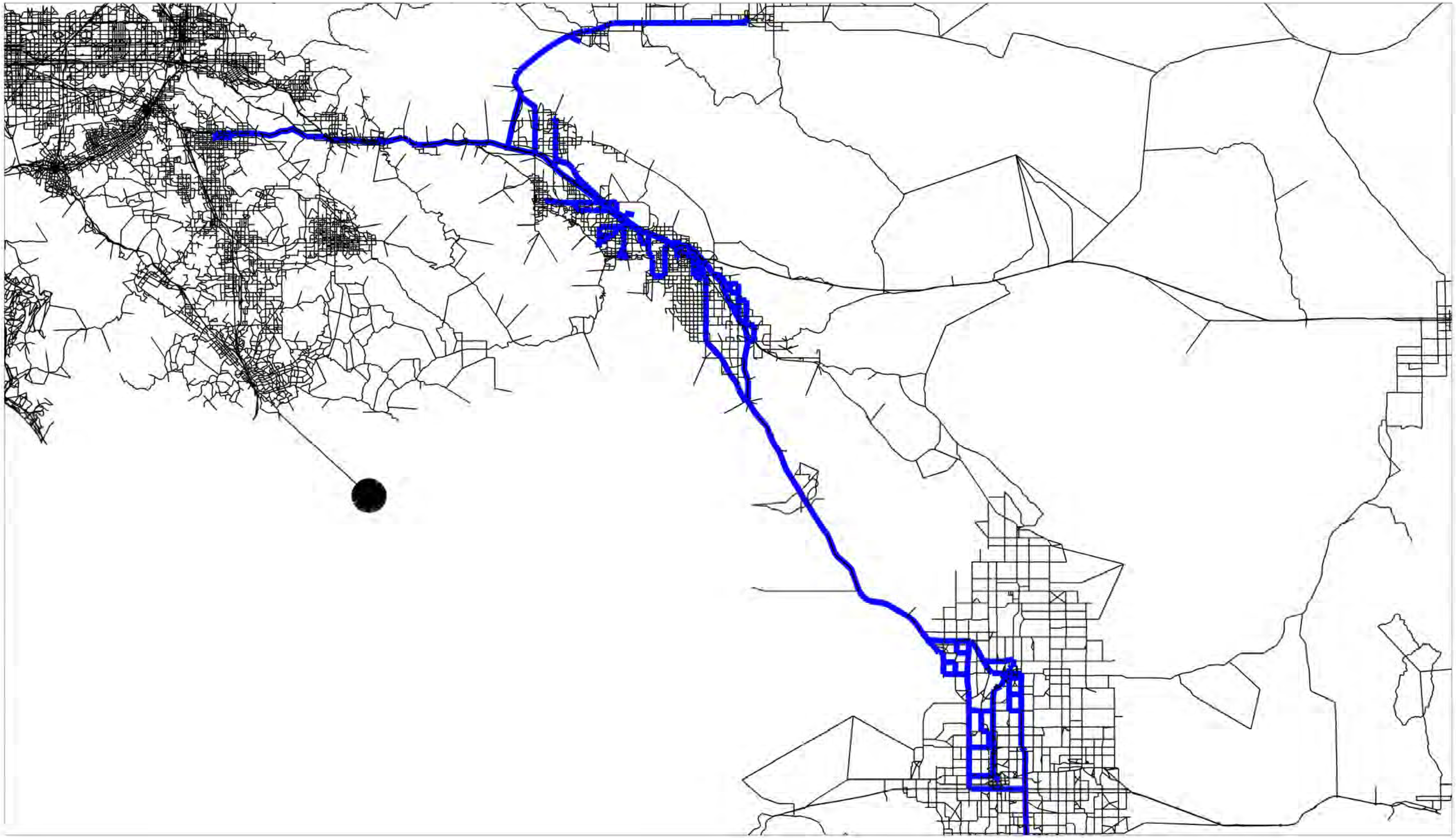

Figure 2

RIVTAM Travel Routes

Figure 3

RIVTAM PM Period Select Zone Traffic Assignment Bandwidth Plot

ATTACHMENT A - TABLE 1
TRIP GENERATION ESTIMATE
Adopted NorthStar Specific Plan-Weekday

ID	Land Use: Planning Area LU Description	ITE Land Use Code	ITE Code Description	Size		Trip Generation Rates [a]: Daily Rate	AM Peak Hour Rate	AM Peak Hour % In	AM Peak Hour % Out	PM Peak Hour Rate	PM Peak Hour % In	PM Peak Hour % Out	Estimated Trip Generation: Daily Trips	AM Peak Hour Trips In	AM Peak Hour Trips Out	AM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out	PM Peak Hour Trips Total
1	18-hole Golf Course	430	Golf Course	18	Hole	30.38	1.76	79%	21%	2.91	53%	47%	547	25	7	32	28	24	52
3	Golf View Hotel	310	Hotel	350	Rooms	8.36	0.47	59%	41%	0.6	51%	49%	2,926	97	68	165	107	103	210
4	Golf View Villas	210	SF Detached Housing	54	DUs	9.44	0.74	25%	75%	0.99	63%	37%	510	10	30	40	33	20	53
5	Resort Timeshare Units	265	Timeshare	216	DUs	8.63	0.4	60%	40%	0.63	40%	60%	1,864	52	34	86	54	82	136
6	Golf View Condos	221	MF Mid-rise	550	DUs	5.44	0.36	26%	74%	0.44	61%	39%	2,992	51	147	198	148	94	242
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	37.75	0.94	62%	38%	3.81	48%	52%	15,100	233	143	376	732	792	1,524
8	Industrial Park R&D	130	Industrial Park	1200	ksf	3.37	0.4	81%	19%	0.4	21%	79%	4,044	389	91	480	101	379	480
9	Executive Office	710	General Office Building	230	ksf	9.74	1.16	86%	14%	1.15	16%	84%	2,240	230	37	267	42	223	265
10	Community Commercial	820	Shopping Center	100	ksf	37.75	0.94	62%	38%	3.81	48%	52%	3,775	58	36	94	183	198	381
	Net New Project Trips												**33,998**	**1,145**	**593**	**1,738**	**1,428**	**1,915**	**3,343**

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

ATTACHMENT A - TABLE 2
TRIP GENERATION ESTIMATE
Adopted NorthStar Specific Plan-Saturday

ID	Land Use	ITE Land Use Code	ITE Code Description	Size		Daily Rate	AM Peak Hour Rate	AM % In	AM % Out	PM Peak Hour Rate	PM % In	PM % Out	Daily Trips	AM Peak Hour Trips In	AM Out	AM Total	PM Peak Hour Trips In	PM Out	PM Total
ID	Planning Area LU Description																		
1	18-hole Golf Course	430	Golf Course	18	Hole	19.89	3.03	49%	51%	3.03	49%	51%	358	27	28	55	27	28	55
3	Golf View Hotel	310	Hotel	350	Rooms	8.19	0.72	56%	44%	0.72	56%	44%	2,867	141	111	252	141	111	252
4	Golf View Villas	210	SF Detached Housing	54	DUs	9.54	0.93	54%	46%	0.93	54%	46%	515	27	23	50	27	23	50
5	Resort Timeshare Units	265	Timeshare	216	DUs	7.34	0.38	47%	53%	0.38	47%	53%	1,585	39	43	82	39	43	82
6	Golf View Condos	221	MF Mid-rise	550	DUs	4.91	0.44	49%	51%	0.44	49%	51%	2,701	119	123	242	119	123	242
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	46.12	4.5	52%	48%	4.5	52%	48%	18,448	936	864	1,800	936	864	1,800
8	Industrial Park R&D	130	Industrial Park	1200	ksf	2.54	0.44	32%	68%	0.44	32%	68%	3,048	169	359	528	169	359	528
9	Executive Office	710	General Office Building	230	ksf	2.21	0.53	54%	46%	0.53	54%	46%	508	66	56	122	66	56	122
10	Community Commercial	820	Shopping Center	100	ksf	46.12	4.5	52%	48%	4.5	52%	48%	4,612	234	216	450	234	216	450
	Net New Project Trips												**34,642**	**1,758**	**1,823**	**3,581**	**1,758**	**1,823**	**3,581**

Trip Generation Rates [a]; Estimated Trip Generation

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

ATTACHMENT A - TABLE 3
TRIP GENERATION ESTIMATE
Adopted NorthStar Specific Plan-Sunday

ID	Land Use (Planning Area LU Description)	ITE Land Use Code	ITE Code Description	Size		Trip Generation Rates [a] Daily Rate	AM Peak Hour Rate	AM Peak Hour % In	AM Peak Hour % Out	PM Peak Hour Rate	PM Peak Hour % In	PM Peak Hour % Out	Estimated Trip Generation Daily Trips	AM Peak Hour Trips In	AM Peak Hour Trips Out	AM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out	PM Peak Hour Trips Total
1	18-hole Golf Course	430	Golf Course	18	Hole	18.89	1.39	12%	88%	1.39	12%	88%	340	3	22	25	3	22	25
3	Golf View Hotel	310	Hotel	350	Rooms	5.95	0.56	46%	54%	0.56	46%	54%	2,083	90	106	196	90	106	196
4	Golf View Villas	210	SF Detached Housing	54	DUs	8.55	0.85	53%	47%	0.85	53%	47%	462	24	22	46	24	22	46
5	Resort Timeshare Units	265	Timeshare	216	DUs	6.01	0.38	82%	18%	0.38	82%	18%	1,298	67	15	82	67	15	82
6	Golf View Condos	221	MF Mid-rise	550	DUs	4.09	0.39	62%	38%	0.39	62%	38%	2,250	133	82	215	133	82	215
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	21.10	2.79	49%	51%	2.79	49%	51%	8,440	547	569	1,116	547	569	1,116
8	Industrial Park R&D	130	Industrial Park	1200	ksf	1.24	0.16	46%	54%	0.16	46%	54%	1,488	88	104	192	88	104	192
9	Executive Office	710	General Office Building	230	ksf	0.70	0.21	58%	42%	0.21	58%	42%	161	28	20	48	28	20	48
10	Community Commercial	820	Shopping Center	100	ksf	21.10	2.79	49%	51%	2.79	49%	51%	2,110	137	142	279	137	142	279
Net New Project Trips													**18,632**	**1,117**	**1,082**	**2,199**	**1,117**	**1,082**	**2,199**

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

ATTACHMENT A - TABLE 4
TRIP GENERATION ESTIMATE
Proposed NorthStar Specific Plan Amendment (without Arena)-Weekday

ID	Land Use	ITE Land Use Code	ITE Code Description	Size		Trip Generation Rates [a]							Estimated Trip Generation						
						Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
						Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
ID	Planning Area LU Description																		
1	18-hole Golf Course	430	Golf Course	18	Hole	30.38	1.76	79%	21%	2.91	53%	47%	547	25	7	32	28	24	52
3	Golf View Hotel	310	Hotel	350	Rooms	8.36	0.47	59%	41%	0.6	51%	49%	2,926	97	68	165	107	103	210
4	Golf View Villas	210	SF Detached Housing	54	DUs	9.44	0.74	25%	75%	0.99	63%	37%	510	10	30	40	33	20	53
5	Resort Timeshare Units	265	Timeshare	216	DUs	8.63	0.4	60%	40%	0.63	40%	60%	1,864	52	34	86	54	82	136
6	Golf View Condos	221	MF Mid-rise	550	DUs	5.44	0.36	26%	74%	0.44	61%	39%	2,992	51	147	198	148	94	242
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	37.75	0.94	62%	38%	3.81	48%	52%	15,100	233	143	376	732	792	1,524
8	Industrial Park R&D	130	Industrial Park	381	ksf	3.37	0.4	81%	19%	0.4	21%	79%	1,284	123	29	152	32	120	152
9	Executive Office	710	General Office Building	230	ksf	9.74	1.16	86%	14%	1.15	16%	84%	2,240	230	37	267	42	223	265
10	Community Commercial	820	Shopping Center	100	ksf	37.75	0.94	62%	38%	3.81	48%	52%	3,775	58	36	94	183	198	381
Net New Project Trips													**31,238**	**879**	**531**	**1,410**	**1,359**	**1,656**	**3,015**

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

ATTACHMENT A - TABLE 5
TRIP GENERATION ESTIMATE
Proposed NorthStar Specific Plan Amendment (without Arena)-Weekday-Saturday

Land Use		ITE Land Use Code	ITE Code Description	Size		Trip Generation Rates [a]							Estimated Trip Generation						
						Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
						Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
ID	Planning Area LU Description																		
1	18-hole Golf Course	430	Golf Course	18	Hole	19.89	3.03	49%	51%	3.03	49%	51%	358	27	28	55	27	28	55
3	Golf View Hotel	310	Hotel	350	Rooms	8.19	0.72	56%	44%	0.72	56%	44%	2,867	141	111	252	141	111	252
4	Golf View Villas	210	SF Detached Housing	54	DUs	9.54	0.93	54%	46%	0.93	54%	46%	515	27	23	50	27	23	50
5	Resort Timeshare Units	265	Timeshare	216	DUs	7.34	0.38	47%	53%	0.38	47%	53%	1,585	39	43	82	39	43	82
6	Golf View Condos	221	MF Mid-rise	550	DUs	4.91	0.44	49%	51%	0.44	49%	51%	2,701	119	123	242	119	123	242
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	46.12	4.5	52%	48%	4.5	52%	48%	18,448	936	864	1,800	936	864	1,800
8	Industrial Park R&D	130	Industrial Park	381	ksf	2.54	0.44	32%	68%	0.44	32%	68%	968	54	114	168	54	114	168
9	Executive Office	710	General Office Building	230	ksf	2.21	0.53	54%	46%	0.53	54%	46%	508	66	56	122	66	56	122
10	Community Commercial	820	Shopping Center	100	ksf	46.12	4.5	52%	48%	4.5	52%	48%	4,612	234	216	450	234	216	450
Net New Project Trips													**32,562**	**1,643**	**1,578**	**3,221**	**1,643**	**1,578**	**3,221**

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

ATTACHMENT A - TABLE 6
TRIP GENERATION ESTIMATE
Proposed NorthStar Specific Plan Amendment (without Arena)-Weekday-Sunday

Land Use		ITE Land Use Code	ITE Code Description	Size		Trip Generation Rates [a]							Estimated Trip Generation						
						Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
						Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
ID	Planning Area LU Description																		
1	18-hole Golf Course	430	Golf Course	18	Hole	18.89	1.39	12%	88%	1.39	12%	88%	340	3	22	25	3	22	25
3	Golf View Hotel	310	Hotel	350	Rooms	5.95	0.56	46%	54%	0.56	46%	54%	2,083	90	106	196	90	106	196
4	Golf View Villas	210	SF Detached Housing	54	DUs	8.55	0.85	53%	47%	0.85	53%	47%	462	24	22	46	24	22	46
5	Resort Timeshare Units	265	Timeshare	216	DUs	6.01	0.38	82%	18%	0.38	82%	18%	1,298	67	15	82	67	15	82
6	Golf View Condos	221	MF Mid-rise	550	DUs	4.09	0.39	62%	38%	0.39	62%	38%	2,250	133	82	215	133	82	215
7	Mixed Use Retail Village	820	Shopping Center	400	ksf	21.10	2.79	49%	51%	2.79	49%	51%	8,440	547	569	1,116	547	569	1,116
8	Industrial Park R&D	130	Industrial Park	381	ksf	1.24	0.16	46%	54%	0.16	46%	54%	472	28	33	61	28	33	61
9	Executive Office	710	General Office Building	230	ksf	0.70	0.21	58%	42%	0.21	58%	42%	161	28	20	48	28	20	48
10	Community Commercial	820	Shopping Center	100	ksf	21.10	2.79	49%	51%	2.79	49%	51%	2,110	137	142	279	137	142	279
Net New Project Trips													**17,616**	**1,057**	**1,011**	**2,068**	**1,057**	**1,011**	**2,068**

Notes: KSF = 1,000 square feet, DU = Dwelling Units, Emp = Employees

Source: Trip Generation, 10th Edition (Institute of Transportation Engineers [ITE], 2017)

Attachment B

Riverside County Arena - Transportation Analysis

5. Vehicle Miles Travelled (VMT) Analysis

Introduction

The following documents a comparison of VMT for the NorthStar Specific Plan and for the Proposed Specific Plan Amendment for the planned Riverside County Arena.

Methodology

The VMT estimates for the NorthStar Specific Plan were identified in the documentation for that project.[1] VMT estimates for the Proposed Specific Plan Amendment were then prepared for comparison purposes.

VMT estimates for the Amendment comprise two components. Firstly VMT for the land uses in the areas not occupied by the arena (these are the original land use types and are referred to as the Specific Plan land uses); and secondly VMT for the proposed arena.

Specific Plan Uses

The Amendment proposes the introduction of a new Planning Area 11 for the proposed arena, and the reconfiguration of the boundaries for Planning Areas 4, 6B, 7 and 8 in order to accommodate the new Planning Area 11. The land use quantities remain the same for all Planning Areas except for Planning Area 8. Because Planning Area 8 has been reduced in size to accommodate the arena, the square footage of Industrial Park land uses has been reduced from 1,200,000 sq. ft. to 381,035 sq. ft. The updated VMT estimates included this new quantity.

VMT estimates for the Approved Specific Plan were obtained from the Northstar Specifc Plan EIR (as referenced above). In reviewing the EIR, the VMT was estimated by multiplying the total daily trips (38,721) and the "typical Riverside County trip lengths" (7 miles).

[1] County of Riverside, Planning Department, *NorthStar Specific Plan No. 343 and Final Environmental Impact Report No. 470,* prep. by Stantec/The Keith Companies (March 2006), p. V-82.

The updated VMT estimates for the Amendment were prepared using the most current version of CalEEMod.

Arena

VMT estimates were prepared for the arena, by event type, and attendance level, to include both patron and employee trips. Trip estimates are detailed elsewhere.[2] VMT was calculated by determining the number of trips from the 30 jurisdictions[3], multiplying by the round trip length to each jurisdiction, and then summing to an overall total. This was performed for sellout/maximum and for average attendance of each event type to obtain a VMT total for each event type. These were then multiplied by the number of each event occurring each year, and summed to obtain an annual VMT estimate for the arena. The daily VMT was then obtained by dividing the annual VMT by 365 days of the year.

These VMT estimates were then added to the VMT estimates for the Specific Plan land uses, to obtain new updated VMT totals for the Proposed Specific Plan Amendment. It is noted that the arena is a unique land use that will cater to varying types and sizes of events, and will not be in operation all the time (approximately 181 days of the year). This compares to the industrial park land use that will be replaced that would have been in operation daily throughout the year.

Results

The detailed analysis is summarized in Table 5.1. This shows the VMT per event type for sellout/maximum and average events, the number of events per year, the total annual VMT (sum of sellout/maximum events and average events), and the total daily VMT, for all event types. It also shows the employee VMT for nonevent days. The bottom line of Table 5.1 shows the overall total arena VMT, which is estimated at 21,380, 013 annual VMT, and 58,575 daily VMT.

Detailed VMT calculations are shown in Appendix A for arena patron and arena employee trips.

Comparison of VMT With 2006 EIR

The 2006 EIR identified a daily VMT estimate of 271,000. Table 5.2 shows the breakdown of VMT for the Amended Specific Plan, by land use and arena.

As shown in Table 5.2 the VMT for the Amended Specific Plan with the arena is estimated at 182,508 daily VMT. This is below the 271,000 daily VMT identified for the Specific Plan in the 2006 EIR.

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[2] 2. Summary of Transportation Analysis Parameters and Estimates, Draft for Review, The Mobility Group, October 7, 2020.

[3] 4. Patron Trip Distribution, Draft for Review, The Mobility Group, October 7, 2020.

It is therefore concluded that the Proposed Specific Plan Amendment would not lead to a substantial increase in the VMT that was previously analyzed in the EIR for the Adopted Specific Plan.

Table 5-1 - VMT Analysis by Event **10/8/2020**

Event	Type	VMT per Sellout Event[1]	VMT per Average Event[1]	Number of Sellout Events	Number of Average Events	Sellout Event Annual VMT	Average Event Annual VMT	Total Annual VMT	Total Daily VMT[2]
Concert	Patron	255,131	185,469	34	11	8,674,454	2,040,159	10,714,613	29,355
	Employee	4,352	2,944			147,968	32,384	180,352	494
	Total	259,483	188,413			8,822,422	2,072,543	10,894,965	29,849
AHL	Patron	174,861	132,247	5	41	874,305	5,422,127	6,296,432	17,250
	Employee	4,352	3,584			21,760	146,944	168,704	462
	Total	179,213	135,831			896,065	5,569,071	6,465,136	17,713
Family	Patron	51,854	41,501	19	19	985,226	788,519	1,773,745	4,860
	Employee	2,816	1,920			53,504	36,480	89,984	247
	Total	54,670	43,421			1,038,730	824,999	1,863,729	5,106
Other-Sport	Patron	160,043	101,915	5	5	800,215	509,575	1,309,790	3,588
	Employee	3,328	2,176			16,640	10,880	27,520	75
	Total	163,371	104,091			816,855	520,455	1,337,310	3,664
Other-Various	Patron	25,546	6,801	10	10	255,460	68,010	323,470	886
	Employee	3,328	768			33,280	7,680	40,960	112
	Total	28,874	7,569			288,740	75,690	364,430	998
G League	Patron	8,243	6,181	1	24	8,243	148,344	156,587	429
	Employee	1,408	1,152			1,408	27,648	29,056	80
	Total	9,651	7,333			9,651	175,992	185,643	509
Event Total		--	--	74	110	11,872,463	9,238,750	21,111,213	57,839
Non-Event	Employee	1,536		175		--	--	268,800	736
Grand Total		--	--	359		--	--	21,380,013	58,575

Notes:

1. Numbers taken from worksheets in Appendix A.
2. Total Daily VMT calculated by dividing Total Annual VMT by 365.

F:\Projects 2020\Coachella Valley Arena\Calculation Methodology\5 - VMT\Run 10-6-20\[RCA - Arena VMT Calculation - 10-8-20.xlsx]Table 5-1 - Detail Summary

Table 5.2 Amended Specific Plan VMT

Land Use	*Annual VMT*	*Daily VMT*
Apartments Low Rise	11,126,995	30,485
Arena	21,380,013	58,575
General Office Building	3,268,752	8,955
Golf Course	947,007	2,595
Hotel	3,596,771	9,854
Industrial Park	840,119	2,302
Regional Shopping Center	21,730,921	59,537
Single Family Housing	3,724,828	10,205
Total	66,615,404	182,508

Sources:

Arena – Table 5.1

Other Specific Plan Land Uses – M eridian Consultants 10-19-20

Appendix A

VMT Calculation Details

Table A-1 - Patron VMT Calculation - Concert **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs	6,208	8,536	10%	10%	621	854	13.2	8,197	11,273
Cathedral City			10%	10%	621	854	9.5	5,900	8,113
Rancho Mirage			3%	3%	186	256	6.6	1,228	1,690
Palm Desert			10%	10%	621	854	6.1	3,788	5,209
Indian Wells			1%	1%	62	85	7.5	465	638
La Quinta			5%	5%	310	427	10.6	3,286	4,526
Indio			10%	10%	621	854	8.4	5,216	7,174
Coachella			5%	5%	310	427	13.9	4,309	5,935
Desert Hot Springs			4%	4%	248	341	18.4	4,563	6,274
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			2%	2%	124	171	40.4	5,010	6,908
Twenty Nine Palms			1%	1%	62	85	61.3	3,801	5,211
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			4%	4%	248	341	35.5	8,804	12,106
Beaumont			5%	5%	310	427	40.7	12,617	17,379
Moreno Valley			10%	10%	621	854	56.6	35,149	48,336
Hemet Area									
Hemet			2%	2%	124	171	54.8	6,795	9,371
San Jacinto			2%	2%	124	171	52.3	6,485	8,943
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			1%	1%	62	85	22.9	1,420	1,947
Salton City			1%	1%	62	85	45.4	2,815	3,859
Imperial Valley									
El Centro			1%	1%	62	85	96	5,952	8,160
Calexico			1%	1%	62	85	105.5	6,541	8,968
Brawley			1%	1%	62	85	80.3	4,979	6,826
Imperial			1%	1%	62	85	91.6	5,679	7,786
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			5%	5%	310	427	69.4	21,514	29,634
San Bernardino			5%	5%	310	427	67.6	20,956	28,865
Total			100%	100%				185,469	255,131

Table A-2 - Patron VMT Calculation - AHL **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs	5,880	7,776	15%	15%	882	1,166	13.2	11,642	15,391
Cathedral City			12%	12%	706	933	9.5	6,707	8,864
Rancho Mirage			4%	4%	235	311	6.6	1,551	2,053
Palm Desert			12%	12%	706	933	6.1	4,307	5,691
Indian Wells			1%	1%	59	78	7.5	443	585
La Quinta			6%	6%	353	467	10.6	3,742	4,950
Indio			11%	11%	647	855	8.4	5,435	7,182
Coachella			6%	6%	353	467	13.9	4,907	6,491
Desert Hot Springs			4%	4%	235	311	18.4	4,324	5,722
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			2%	2%	118	156	40.4	4,767	6,302
Twenty Nine Palms			2%	2%	118	156	61.3	7,233	9,563
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			5%	5%	294	389	35.5	10,437	13,810
Beaumont			7%	7%	412	544	40.7	16,768	22,141
Moreno Valley			8%	8%	470	622	56.6	26,602	35,205
Hemet Area									
Hemet			0%	0%	0	0	54.8	0	0
San Jacinto			0%	0%	0	0	52.3	0	0
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			1%	1%	59	78	22.9	1,351	1,786
Salton City			0%	0%	0	0	45.4	0	0
Imperial Valley									
El Centro			1%	1%	59	78	96	5,664	7,488
Calexico			1%	1%	59	78	105.5	6,225	8,229
Brawley			1%	1%	59	78	80.3	4,738	6,263
Imperial			1%	1%	59	78	91.6	5,404	7,145
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			0%	0%	0	0	69.4	0	0
San Bernardino			0%	0%	0	0	67.6	0	0
Total			100%	100%				132,247	174,861

Table A-3 - Patron VMT Calculation - Family **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs			17%	17%	453	567	13.2	5,980	7,484
Cathedral City			15%	15%	400	500	9.5	3,800	4,750
Rancho Mirage			6%	6%	160	200	6.6	1,056	1,320
Palm Desert			14%	14%	373	467	6.1	2,275	2,849
Indian Wells			2%	2%	53	67	7.5	398	503
La Quinta			7%	7%	187	233	10.6	1,982	2,470
Indio			13%	13%	347	433	8.4	2,915	3,637
Coachella			7%	7%	187	233	13.9	2,599	3,239
Desert Hot Springs			4%	4%	107	133	18.4	1,969	2,447
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			1%	1%	27	33	40.4	1,091	1,333
Twenty Nine Palms			1%	1%	27	33	61.3	1,655	2,023
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			3%	3%	80	100	35.5	2,840	3,550
Beaumont			5%	5%	133	167	40.7	5,413	6,797
Moreno Valley	2,666	3,334	5%	5%	133	167	56.6	7,528	9,452
Hemet Area									
Hemet			0%	0%	0	0	54.8	0	0
San Jacinto			0%	0%	0	0	52.3	0	0
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			0%	0%	0	0	22.9	0	0
Salton City			0%	0%	0	0	45.4	0	0
Imperial Valley									
El Centro			0%	0%	0	0	96	0	0
Calexico			0%	0%	0	0	105.5	0	0
Brawley			0%	0%	0	0	80.3	0	0
Imperial			0%	0%	0	0	91.6	0	0
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			0%	0%	0	0	69.4	0	0
San Bernardino			0%	0%	0	0	67.6	0	0
Total			100%	100%				41,501	51,854

Table A-4 - Patron VMT Calculation - Other-Sport **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs	5,488	8,624	16%	16%	878	1,380	13.2	11,590	18,216
Cathedral City			15%	15%	823	1,294	9.5	7,819	12,293
Rancho Mirage			5%	5%	274	431	6.6	1,808	2,845
Palm Desert			14%	14%	768	1,207	6.1	4,685	7,363
Indian Wells			1%	1%	55	86	7.5	413	645
La Quinta			7%	7%	384	604	10.6	4,070	6,402
Indio			12%	12%	659	1,035	8.4	5,536	8,694
Coachella			6%	6%	329	517	13.9	4,573	7,186
Desert Hot Springs			4%	4%	220	345	18.4	4,048	6,348
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			1%	1%	55	86	40.4	2,222	3,474
Twenty Nine Palms			1%	1%	55	86	61.3	3,372	5,272
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			4%	4%	220	345	35.5	7,810	12,248
Beaumont			5%	5%	274	431	40.7	11,152	17,542
Moreno Valley			7%	7%	384	604	56.6	21,734	34,186
Hemet Area									
Hemet			0%	0%	0	0	54.8	0	0
San Jacinto			0%	0%	0	0	52.3	0	0
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			0%	0%	0	0	22.9	0	0
Salton City			0%	0%	0	0	45.4	0	0
Imperial Valley									
El Centro			1%	1%	55	86	96	5,280	8,256
Calexico			1%	1%	55	86	105.5	5,803	9,073
Brawley			0%	0%	0	0	80.3	0	0
Imperial			0%	0%	0	0	91.6	0	0
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			0%	0%	0	0	69.4	0	0
San Bernardino			0%	0%	0	0	67.6	0	0
Total			100%	100%				101,915	160,043

Table A-5 - Patron VMT Calculation - Other-Various **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs	608	2,280	16%	16%	97	365	13.2	1,280	4,818
Cathedral City			18%	18%	109	410	9.5	1,036	3,895
Rancho Mirage			8%	8%	49	182	6.6	323	1,201
Palm Desert			19%	19%	116	433	6.1	708	2,641
Indian Wells			3%	3%	18	68	7.5	135	510
La Quinta			7%	7%	43	160	10.6	456	1,696
Indio			13%	13%	79	296	8.4	664	2,486
Coachella			7%	7%	43	160	13.9	598	2,224
Desert Hot Springs			4%	4%	24	91	18.4	442	1,674
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			0%	0%	0	0	40.4	0	0
Twenty Nine Palms			0%	0%	0	0	61.3	0	0
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			2%	2%	12	46	35.5	426	1,633
Beaumont			3%	3%	18	68	40.7	733	2,768
Moreno Valley			0%	0%	0	0	56.6	0	0
Hemet Area									
Hemet			0%	0%	0	0	54.8	0	0
San Jacinto			0%	0%	0	0	52.3	0	0
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			0%	0%	0	0	22.9	0	0
Salton City			0%	0%	0	0	45.4	0	0
Imperial Valley									
El Centro			0%	0%	0	0	96	0	0
Calexico			0%	0%	0	0	105.5	0	0
Brawley			0%	0%	0	0	80.3	0	0
Imperial			0%	0%	0	0	91.6	0	0
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			0%	0%	0	0	69.4	0	0
San Bernardino			0%	0%	0	0	67.6	0	0
Total			100%	100%				6,801	25,546

Table A-6 - Patron VMT Calculation - G League **10/8/2020**

Origin / Destination	Daily Trip Generation		Trip Distribution		Trip Assignment		One-way Average Trip length (miles)	Average Event VMT	Max Event VMT
	Average	Sellout	Average	Sellout	Average	Sellout			
Coachella Valley									
Palm Springs	600	800	21%	21%	126	168	13.2	1,663	2,218
Cathedral City			17%	17%	102	136	9.5	969	1,292
Rancho Mirage			6%	6%	36	48	6.6	238	317
Palm Desert			17%	17%	102	136	6.1	622	830
Indian Wells			1%	1%	6	8	7.5	45	60
La Quinta			8%	8%	48	64	10.6	509	678
Indio			16%	16%	96	128	8.4	806	1,075
Coachella			8%	8%	48	64	13.9	667	890
Desert Hot Springs			6%	6%	36	48	18.4	662	883
High Desert									
Morongo Valley			0%	0%	0	0	29.5	0	0
Yucca Valley			0%	0%	0	0	40.4	0	0
Twenty Nine Palms			0%	0%	0	0	61.3	0	0
Banning Pass									
Cabazon			0%	0%	0	0	30.5	0	0
Banning			0%	0%	0	0	35.5	0	0
Beaumont			0%	0%	0	0	40.7	0	0
Moreno Valley			0%	0%	0	0	56.6	0	0
Hemet Area									
Hemet			0%	0%	0	0	54.8	0	0
San Jacinto			0%	0%	0	0	52.3	0	0
Salton Sea									
Thermal			0%	0%	0	0	16.9	0	0
Mecca			0%	0%	0	0	22.9	0	0
Salton City			0%	0%	0	0	45.4	0	0
Imperial Valley									
El Centro			0%	0%	0	0	96	0	0
Calexico			0%	0%	0	0	105.5	0	0
Brawley			0%	0%	0	0	80.3	0	0
Imperial			0%	0%	0	0	91.6	0	0
Calipatria			0%	0%	0	0	76.8	0	0
Hotville			0%	0%	0	0	102	0	0
Westmoreland			0%	0%	0	0	76.7	0	0
Riverside			0%	0%	0	0	69.4	0	0
San Bernardino			0%	0%	0	0	67.6	0	0
Total			100%	100%				6,181	8,243

Table A-7 - Employee VMT

Riverside County Arena - Employee VMT - Non-Event Days 10/8/20

Number of Employees			Daily Trip Generation[1]	One-Way Trip Length (miles)	Daily VMT	Annual Number of Non-Events	Annual VMT
Regular	Temp	Total					
60	0	60	120	12.8	1,536	175	268,800

Note:

Only non-event weekdays are counted in number of non-event days.

Riverside County Arena - Employee VMT - Event Days 10/8/20

Event Type	Sell Out Event								Average Event								Total Daily VMT	Total Annual VMT
	Number of Employees			Daily Trip Generation	One-Way Trip Length (miles)	Daily VMT	Annual Number of Events	Annual VMT	Number of Employees			Daily Trip Generation	One-Way Trip Length (miles)	Daily VMT	Annual Number of Events	Annual VMT		
	Regular	Temp	Total						Regular	Temp	Total							
Concert	45	125	170	340	12.8	4,352	34	147,968	40	75	115	230	12.8	2,944	11	32,384	7,296	180,352
AHL	80	90	170	340	12.8	4,352	5	21,760	70	70	140	280	12.8	3,584	41	146,944	7,936	168,704
Family	30	80	110	220	12.8	2,816	19	53,504	25	50	75	150	12.8	1,920	19	36,480	4,736	89,984
Other-Sport	40	90	130	260	12.8	3,328	5	16,640	25	60	85	170	12.8	2,176	5	10,880	5,504	27,520
Other-Various	40	90	130	260	12.8	3,328	10	33,280	10	20	30	60	12.8	768	10	7,680	4,096	40,960
G League	25	30	55	110	12.8	1,408	1	1,408	20	25	45	90	12.8	1,152	24	27,648	2,560	29,056
Total	--	--	--	--	--	--	74	274,560	--	--	--	--	--	--	110	262,016	--	536,576

Summary - Employee VMT

Scenario	Annual VMT[2]	Daily VMT[3]
Non-Event	268,800	736
Event	536,576	1,470
Total	805,376	2,207

Notes:

1. Calculated by assuming each employee makes 2 trips (one inbound and one outbound).

All employees drive auto and vehicle occupancy is assumed to be 1.

2. Numbers taken from total annual VMT of Non-Event and Event tables above.

3. Annual VMT numbers divided by 365.

Attachment C

Riverside County Arena - Transportation Analysis

4. Patron Trip Distribution

Introduction

The following provides documentation of the estimated trip distribution of arena trips. The following discussion describes the projected market area and patron origins for the planned Riverside County Arena. It is based on market information and expectations provided by Oak View Group[1], and considerations of population, travel distance, and the characteristics of the Coachella Valley and surrounding region.

Overview

As owner of the AHL team, and operator of the arena, Oak View Group has conducted market review and research of the likely attendance levels and market origins of patrons for the events that will be held at the arena.

The maximum driving time expected for American Hockey League (AHL) events is about 45 minutes. That includes all of the Coachella Valley, much of the High Desert, the Banning Pass, and Moreno Valley. It is considered likely that AHL events would draw a very small amount from the Imperial Valley due to the distance involved, and would not draw from the Riverside / San Bernardino area due to its closer proximity to the Toyota Arena in Ontario.

The maximum driving time expected for a concert event is about 60 minutes. This extends the market area to include the Salton Sea communities, the Hemet Area, and Riverside / San Bernardino. Although the Imperial Valley communities are generally more than an hour's drive time it is expected concert attendance for marquee high demand events may also draw from there. It is expected that less than 10% of attendees would draw from beyond a 60 minute drive time.

It is expected that attendance would draw from visitors staying at hotels or from tourist destinations in these areas. Given the destination qualities of the area, it is likely that high profile concerts will draw visitors who plan trips around concerts and stay in the Coachella Valley,

[1] Oak View Group, August/September, 2019; and September, 2020.

The projections of patron origin were based on the market expectations of Oak View Group, the population distribution within the Coachella Valley and the greater market area, and consideration of driving times (i.e. more patrons would drive shorter distances and fewer would drive longer distances).

These expectations provided estimates of the proportions of patrons that would originate from within the Coachella Valley, and from outside the Valley. These estimates are shown in Table 4.1.

Table 4.1. Patron Trip Origins – Regional Level

Patron Trip Origins	*Event Type*					
	Concerts	*AHL*	*Family*	*Other Sports*	*Other Various*	*G League*
Within Coachella Valley	58%	71%	85%	80%	95%	100%
Outside Coachella Valley	42%	29%	15%	20%	5%	0%

The estimates in Table 4.1 reflect the characteristics discussed above. Family shows, due to their nature, are considered to have a higher proportion trips from the Coachella Valley. Other Sports would similarly be more locally and Coachella Valley oriented due to the mix of local type events. The Other Various events would be almost exclusively Coachella Valley oriented due to their nature of conferences, cultural, convention and other local events. G League games are expected to draw exclusively from the Coachella Valley.

A more detailed analysis was conducted within this framework. A total of 30 individual jurisdictions were identified in 11 sub-areas. Population estimates[2] were identified for each jurisdiction along with the trip distance to the arena site. The percentage of patron origins from each jurisdiction was then estimated based on the population and the driving distance[3]. The estimates were then aggregated to the 11 sub-areas, and the resulting estimated distribution of patron origins is shown in Table 4.2. The detailed information by the 30 individual jurisdictions is shown in Appendix A.

[2] Population estimates were obtained from the US Census 2019 Vintage Estimate " Annual Estimates of the Resident Population for Incorporated Places in California, April 1, 2010 to July, 2109. For the Morongo Valley, Cabazon, Thermal, Salton City, Twenty Nine Palms, and Westmoreland, estimates were obtained from Google searches of 2010 Census and 2018 Census estimates.

[3] A simple linear decay function was used.

Table 4-2 Estimated Origins of Patrons 10/7/2020

Area	Location	Concert	AHL	Family	Other Sport	Other Various	G League
Coachella Valley	Palm Springs	10%	15%	17%	16%	16%	21%
	Cathedral City	10%	12%	15%	15%	18%	17%
	Mid Coachella Valley	14%	17%	22%	20%	30%	24%
	East Coachella Valley	20%	23%	27%	25%	27%	32%
	North PS/Desert Hot Springs	4%	4%	4%	4%	4%	6%
	Sub-Total	**58%**	**71%**	**85%**	**80%**	**95%**	**100%**
High Desert		3%	4%	2%	2%	--	--
Banning Pass		9%	12%	8%	9%	5%	--
Moreno Valley		10%	8%	5%	7%	--	--
Hement Area		4%	--	--	--	--	--
Salton Sea / Imperial Valley		6%	5%	--	2%	--	--
Riverside / San Bernardino		10%	--	--	--	--	--
	Sub-Total	**42%**	**29%**	**15%**	**20%**	**5%**	**0%**
Total		100%	100%	100%	100%	100%	100%

Mid Coachella Valley: Includes Rancho Mirage, Palm Desert, Indian Wells
East Coachella Valley: Includes La Quinta, Indio, Coachella
High Desert: Includes Morongo Valley, Yucca Valley, Twenty Nine Palms
Banning Pass: Includes Cabazon, Banning, Beaumont
Hement Area: Includes Hement, San Jacinto
Salton Sea: Includes Thermal, Mecca, Salton City
Imperial Valley: Includes Cities south of Salton Sea

Appendix A

Patron Origins by Jurisdiction

Appendix A - Estimated Origins of Patrons

Location	Population	Distance	Percent Origination					
			Concert	AHL	Family	Other-Sport	Other-Various	G League
Coachella Valley								
Palm Springs	48,518	13.2	10%	15%	17%	16%	16%	21%
Cathedral City	55,007	9.5	10%	12%	15%	15%	18%	17%
Rancho Mirage	18,528	6.6	3%	4%	6%	5%	8%	6%
Palm Desert	53,275	6.1	10%	12%	14%	14%	19%	17%
Indian Wells	5,470	7.5	1%	1%	2%	1%	3%	1%
Total	77,273		14%	17%	22%	20%	30%	24%
La Quinta	41,748	10.6	5%	6%	7%	7%	7%	8%
Indio	91,765	8.4	10%	11%	13%	12%	13%	16%
Coachella	45,743	13.9	5%	6%	7%	6%	7%	8%
Total	179,256		20%	23%	27%	25%	27%	32%
Desert Hot Springs	28,878	18.4	4%	4%	4%	4%	4%	6%
High Desert								
Morongo Valley	3,552	29.5	0%	0%	0%	0%	0%	0%
Yucca Valley	21,777	40.4	2%	2%	1%	1%	0%	0%
Twenty Nine Palms	26,418	61.3	1%	2%	1%	1%	0%	0%
Total	51,747		3%	4%	2%	2%	0%	0%
Banning Pass								
Cabazon	2,535	30.5	0%	0%	0%	0%	0%	0%
Banning	31,221	35.5	4%	5%	3%	4%	2%	0%
Beaumont	51,063	40.7	5%	7%	5%	5%	3%	0%
Total	84,819		9%	12%	8%	9%	5%	0%
Moreno Valley	213,055	56.6	10%	8%	5%	7%	0%	0%
Hemet Area								
Hemet	85,334	54.8	2%	0%	0%	0%	0%	0%
San Jacinto	49,215	52.3	2%	0%	0%	0%	0%	0%
Total	134,549		4%	0%	0%	0%	0%	0%

Appendix A - Estimated Origins of Patrons

Location	Population	Distance	Percent Origination					
			Concert	AHL	Family	Other-Sport	Other-Various	G League
Salton Sea								
Thermal	2,865	16.9	0%	0%	0%	0%	0%	0%
Mecca	8,577	22.9	1%	1%	0%	0%	0%	0%
Salton City	3,763	45.4	1%	0%	0%	0%	0%	0%
Total	15,205		2%	1%	0%	0%	0%	0%
Imperial Valley								
El Centro	44,079	96	1%	1%	0%	1%	0%	0%
Calexico	39,825	105.5	1%	1%	0%	1%	0%	0%
Brawley	26,227	80.3	1%	1%	0%	0%	0%	0%
Imperial	18,120	91.6	1%	1%	0%	0%	0%	0%
Calipatria	7,114	76.8	0%	0%	0%	0%	0%	0%
Hotville	6,621	102	0%	0%	0%	0%	0%	0%
Westmoreland	2,270	76.7	0%	0%	0%	0%	0%	0%
Total	144,256		4%	4%	0%	2%	0%	0%
Riverside	331,360	69.4	5%	0%	0%	0%	0%	0%
San Bernardino	215,784	67.6	5%	0%	0%	0%	0%	0%
Total	547,144		10%	0%	0%	0%	0%	0%
Overall Total	1,579,707		100%	100%	100%	100%	100%	100%

Note:

All populations figure are from Annual Estimates of the Resident Population for Incorporated Places in California:

April 1, 2010 to July 1, 2019, City and Town Population Totals: 2010 -2019, US Census Bureau

https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html Except the following:

Morongo valley, Cabazon, Thermal, Mecca, Salton City, which are based on 2010 US Cenus per google search output, and

Twenty Nine Palms and Westmoreland, which are based on 2018 US Cenus estimate per google search output.

APPENDIX G

Water and Wastewater Hydraulic Modeling

G1

Palm Springs Arena - Sanitation Hydraulic Modeling Results

COACHELLA VALLEY WATER DISTRICT
Established in 1918 as a public agency

GENERAL MANAGER
Jim Barrett

CLERK OF THE BOARD
Sylvia Bermudez

ASSISTANT GENERAL MANAGER
Robert Cheng

ASSISTANT GENERAL MANAGER
Dan Charlton

December 17, 2020

Dustin Dvorak, EIT
KPFF Consulting Engineers
700 South Flower Street, Suite 2100
Los Angeles, CA 90017

Dear Mr. Dvorak:

Subject: Palm Springs Arena - Sanitation Hydraulic Modeling Results

The purpose of this letter is to provide results from the hydraulic model completed by Coachella Valley Water District (CVWD) for the proposed Palm Springs Arena Development (Project). The Project is located along Varner Road east of Cook Street within the City of Palm Desert. The Project consists of developing an arena complex with a total site area of approximately 94.9 acres, (See Figure 1).

KPFF Consulting Engineers, requested CVWD to perform hydraulic modeling of the Project. On November 20, 2020 CVWD received sewer improvement plans and the Hydraulic Model Checklist.

Sanitation Hydraulic Modeling Results:

The sanitation sewer hydraulic loading is based on the calculated number of equivalent dwelling units (EDU) and flows per EDU as provided in CVWD's Development Design Manual (DDM). The DDM provides for average annual and peak hour dry weather flows (PDWF) of 200 gallons per day per EDU (gpd/EDU) and 400 gpd/EDU, respectively. Peak wet weather flow is three times the average annual flow. The estimated peak hour dry weather flow was simulated in the hydraulic model to verify that conditions do not exceed CVWD's depth-to-diameter ratio (d/D) design criteria for sewer pipelines within the existing sanitation sewer system.

Based on the information provided by KPFF Consulting Engineers, the Project will add loading from 1303 EDUs generated by the sport complex to the existing sewer system. Table 1 shows the calculated average annual dry weather flows and peak hour dry weather flows used in the hydraulic model analysis.

Table 1 – Palm Springs Area Development EDUs and Calculated Sewer Flows

Area	Total EDU	Average Annual Dry Weather Flow (gpm)	Peak Hour Dry Weather Flow (gpm)
Palm Springs Arena	1303	181	362

A hydraulic model was used to simulate the calculated flow conditions from the proposed connections and to verify that flow conditions in existing pipelines meet the criteria in CVWD's DDM.

Onsite Piping

The Project proposes approximately 0.2 miles of new gravity main between 8 to 10-inches in diameter that collect development flow and connect to an existing 24-inch diameter pipeline along Varner Road beginning approximately 4,900 feet southeast of Cook Street, (See Figure 1). The size and capacity of the proposed onsite sanitary sewer pipeline is adequate for the anticipated sewer loading from the Project.

Offsite Piping

The Project contributes flows through a gravity sewer ranging in size from 24 to 27-inches in diameter, ultimately discharging flows to WRP-7, (See Figure 1). The hydraulic analysis indicates that the existing pipelines downstream of the development are adequately sized to convey development flows. With the addition of development flows, the existing downstream pipelines experience peak d/D ratios between 0.31 and 0.57, while the CVWD DDM Criteria for sanitary sewer pipelines between 10-inches and 27-inches is 0.67. Thus, the development flows are adequate under the DDM Criteria.

These hydraulic model comments are for plan check purposes only. The ultimate design responsibility resides with the Engineer-of-Record for the project. The design shall comply with the rules, regulations, and specifications outlined in the DDM and should be submitted to CVWD for review.

The hydraulic modeling results are valid for one year from the date of this letter. Thereafter, CVWD may review and revise the requirements and/or require an updated hydraulic analysis.

CVWD received a deposit in the amount of $2,500 for the hydraulic model from KPFF Consulting Engineers. Any funds remaining after the project review is complete will be returned. If additional funds were expended for project review above the $2,500 deposit, an invoice will be issued.

Please contact Tommy Fowlkes, Development Services Supervisor, for the calculation of the estimated fees, including the Sanitation Capacity Charge (SCC) for this project. In addition, Development Services will incorporate the project's requirements in CVWD's Sanitation System Installation Agreement.

If you have any questions on the hydraulic model results, please contact Armando Rodriguez, (760) 398-2651 extension 2365. If you have any questions on the SCC fees, please contact Tommy Fowlkes at extension 3535

Sincerely,

Armando Rodriguez
Engineering Manager

REGISTERED PROFESSIONAL ENGINEER
ARMANDO RODRIGUEZ
No. C 63710
Exp. 09/2022
CIVIL
STATE OF CALIFORNIA

Enclosures/1/as

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File No.:0707.21.1, 0721.1

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CVWD

ec: (All with enclosure)
Armando Rodriguez
Tommy Fowlkes
Carrie Oliphant
Mike Morales
Jose Lorigo
Juan Medina
David McGee
Sandra Villalobos
Sara Lopez
Ruben Montiel
Nancy Clark
Donnell Wilcox
John Norton
Ana Olivares
Stephanie Lopez

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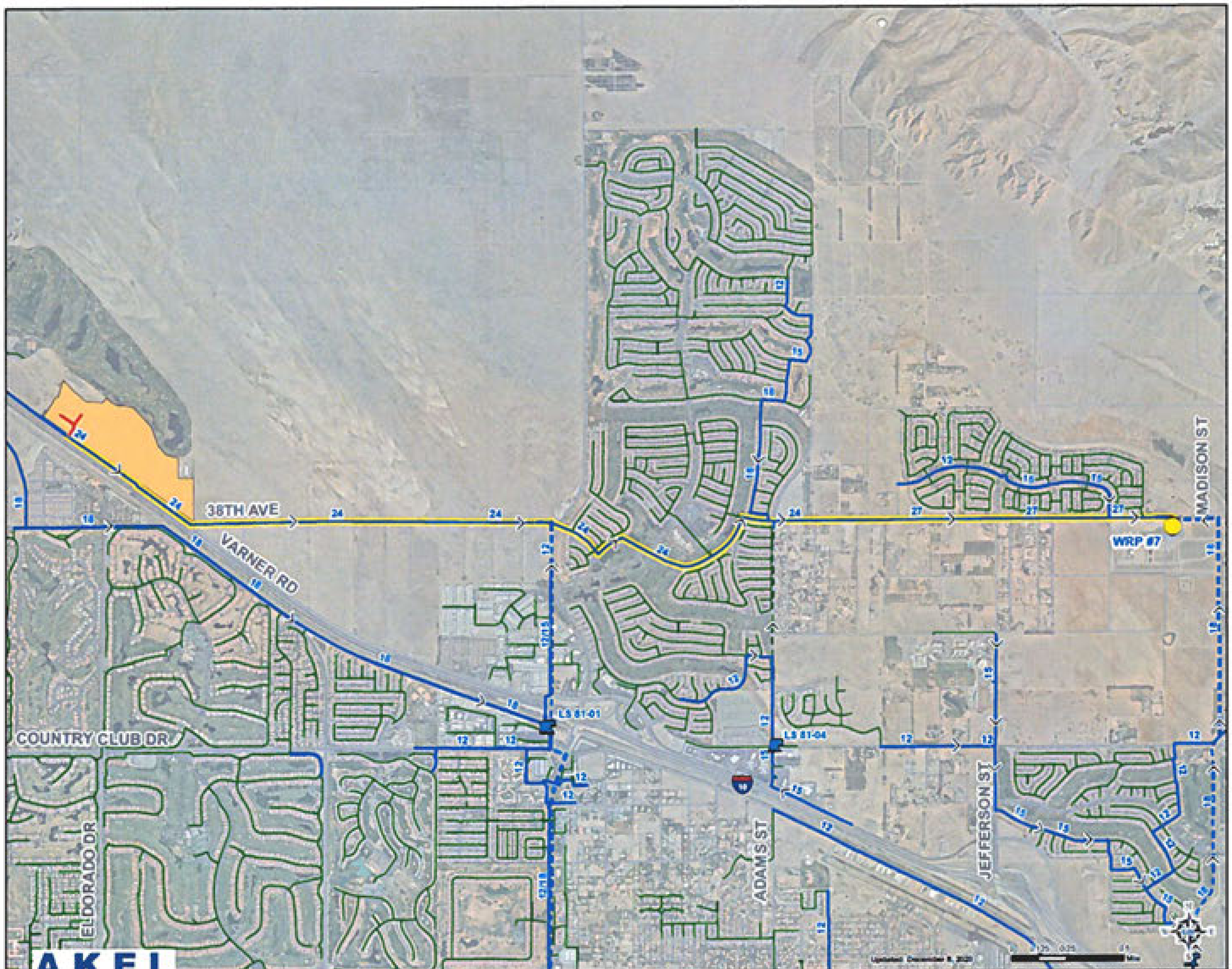

Figure 1
Off/On Site Pipelines
Palm Springs Arena
Hydraulic Model Study
Coachella Valley Water District

G2

Parcel Map No. 38040, Palm Springs Arena Hydraulic Modeling Results

January 6, 2021

Dustin Dvorak
KPFF Consulting Engineers
700 South Flower Street, Suite 2100
Los Angeles, CA 90017

Dear Mr. Dvorak:

Subject: Parcel Map No. 38040, Palm Springs Arena
Hydraulic Modeling Results, Project No. ST0197

The purpose of this letter is to review the results of the domestic water hydraulic modeling completed by the Coachella Valley Water District (CVWD) for Parcel Map No. 38040, Palm Springs Arena development (Project). The Project site is located north of Varner Road east of Cook Street within the city of Palm Desert.

The Project consists of a 226,500 square foot arena within a 94.9 acre site. This Project lies within a 198 acre site (Exhibit A) for a project known as Classic Club Clubhouse and Delfino Resort. As of this date only the Classic Club Clubhouse and Golf Course maintenance yard have been constructed within approximately 14 acres.

Hydraulic modeling was completed to verify the domestic water facilities required for the Project using the estimated water demands. The results of the hydraulic modeling are summarized below.

Domestic Water Hydraulic Modeling Results:

The Project will have peak day domestic demands of 252 gallons per minute (gpm). The fire flow requirements for this Project are not available at this time. However, the hydraulic modeling included two fire flow scenarios; one for 1,000 gpm and the other for 2,000 gpm for a two hour duration while maintaining 20 pounds per square inch (psi) residual operating pressure. A letter from the Fire Marshal or Conditions of Approval will be required to confirm the above fire flow range prior to plan check review of proposed domestic water pipelines.

This development falls within the Valley Pressure Zone (335 feet reservoir base elevation). The Project's domestic water demands, fire flow requirements, and the proposed on-site infrastructure improvements were simulated in the hydraulic model to determine if pressure, flow velocity, and head loss requirements satisfied CVWD's criteria.

Onsite Piping

The Project will connect to an existing 18-inch diameter domestic water pipeline and install an additional 18-inch diameter pipeline and a 6-inch diameter and 8-inch diameter pipeline to the proposed domestic water service and fire protection connections on the main entry driveway as shown in Exhibit B. It is recommended that these service and fire protection connections are installed off a single pipeline that connects to the proposed 18-inch diameter pipeline as shown in Exhibit B in order to minimize costs and shorten the service lengths. An 8-inch diameter pipeline is sufficient for a fire flow for 1,000 gpm. A 12-inch diameter pipeline will be needed if the final fire flow is 2,000 gpm. CVWD will require the domestic water service connection to be provided with multiple standard size water meters with above-grade backflow preventors instead of the meter vault called out in the utility drawings. The general location of the proposed domestic water service and fire protection connections are acceptable; however, the Fire Marshal may require additional private pipeline improvements.

Offsite Piping

Domestic water pipeline improvements have been installed by the previous phase of the project known as Classic Club Clubhouse/Delfino Resort. These improvements include pipelines on Varner Road and under Interstate 10 Freeway. Additional offsite pipelines are not required for this Project.

Reservoir Impact

Based on the domestic water demands and fire flow requirements of 2,000 gpm, the project requires approximately 422,880 gallons of net storage capacity (362,880 gallons for domestic demands and 60,000 gallons for fire flow requirements). The fire flow component of the storage capacity has been reduced by 180,000 gallons to account for the standard residential fire flow of 1,500 gpm for two (2) hours.

The cost to design and construct the reservoir storage will be paid for either through the Project's Water System Back-up Facility Charge or through a separate Reservoir Fee that will be determined at the time the Special Domestic Water System Installation Agreement is prepared.

Water Supply and Well Sites

Based on the total project site size of 198 acres, two (2) well sites are required which is a reduction from the three (3) well sites required in 2006 for the total project because of changes to CVWD's well site criteria. One well site needs to be provided with this Project and the developer(s) must submit the location of the well sites to CVWD for approval. The well sites shall be fully improved with exterior low-maintenance landscaping, 8-foot-high block walls, a 20 foot wide concrete driveway, access gates, curbs and gutters, 12-inch minimum diameter water pipeline stub which connects to the domestic water system, power and telephone service, and blow-off water drainage facilities. If the blow-off water will be retained within the site, then the minimum size of the site shall be 0.75 acres. If a retention basin is proposed outside the well site, then a minimum 0.50 acre site is acceptable; however, the maintenance of the pipeline to the retention basin and the retention basin itself, shall be the responsibility of the property owner. A site plan must be submitted for final approval prior to construction of the above requirements.

Additional information on the remaining project scope and peak day demands is needed to determine if a pumping plant(s) is required.

These hydraulic model comments are for plan check purposes only. The ultimate design responsibility resides with the Engineer-of-Record for the project.

The hydraulic modeling results are valid for one year from the date of this letter. Thereafter, CVWD may review and revise the requirements and/or require an updated hydraulic analysis.

Please contact Tommy Fowlkes, Development Services Supervisor, for the calculation of the estimated fees, including the Water System Back-up Facility Charge (WSBFC) and Supplemental Water Supply Charge (SWSC) for the Project. In addition, Development Services will incorporate the Project's requirements in CVWD's Special Domestic Water System Installation Agreement.

If you have any questions, please call Hector Rodriguez, Domestic Water Engineer, at (760) 398-2651, extension 2397. If you have any questions on the WSBFC and SWSC fees, please contact Tommy Fowlkes at extension 3535.

Sincerely,

Hector A. Rodriguez

Hector A. Rodriguez, P.E.
Domestic Water Engineer

REGISTERED PROFESSIONAL ENGINEER
HECTOR A. RODRIGUEZ
C 58195
CIVIL
STATE OF CALIFORNIA

Enclosure/2/as

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File: 0421.2

MAILED
JAN 7 2020
CVWD

ec: <u>(All with enclosure)</u>
Carrie Oliphant
Tommy Fowlkes
Mike Spurkosky
David McGee
Sandra Villalobos
Sara Lopez
Ruben Montiel
Hector Rodriguez
Nancy Clark
Doug Kneuer
Juan Medina
Jose Lorigo
Ruben Rivera
Steve Bigley
Dan Ruiz
John Norton
Ana Olivares

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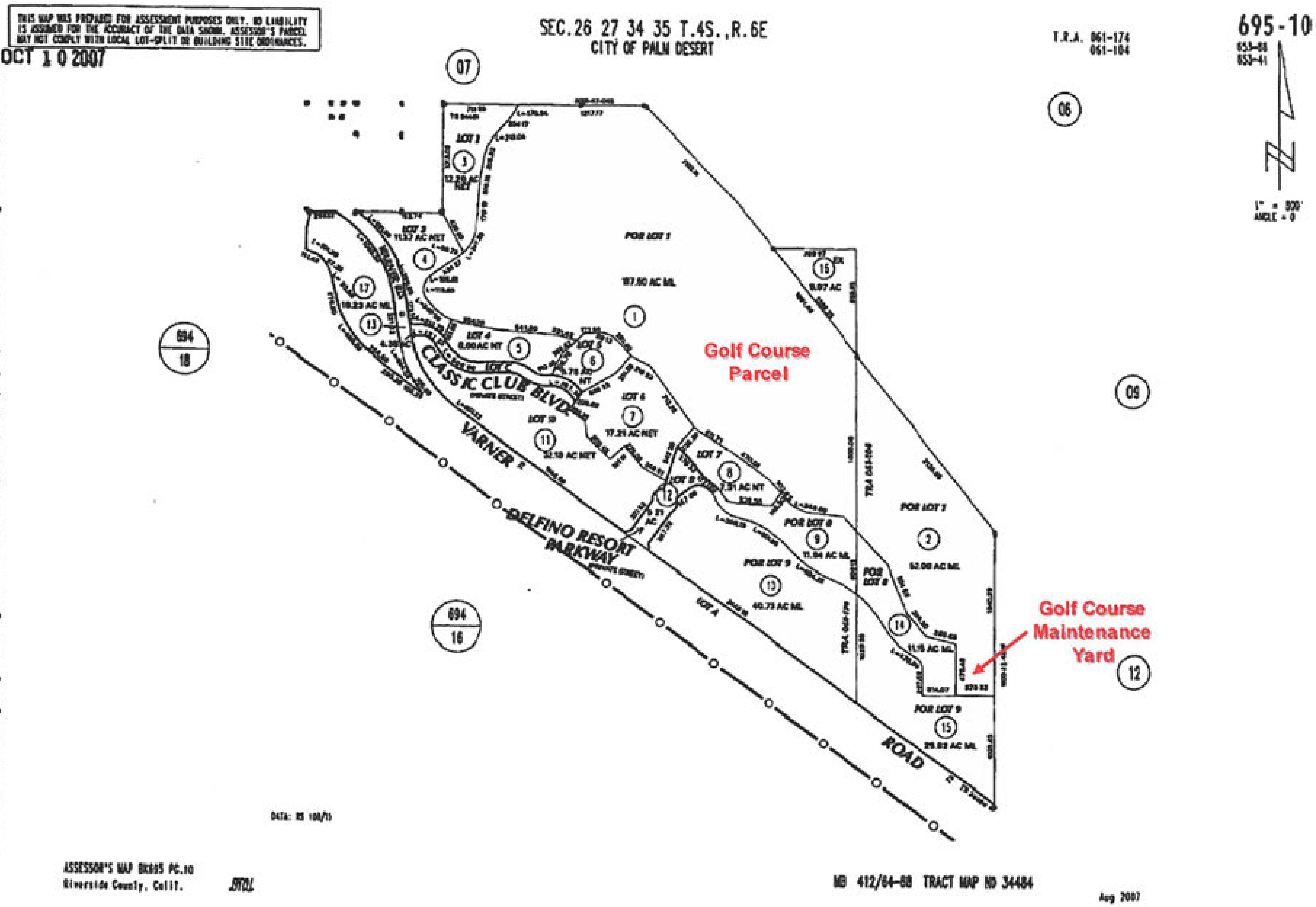
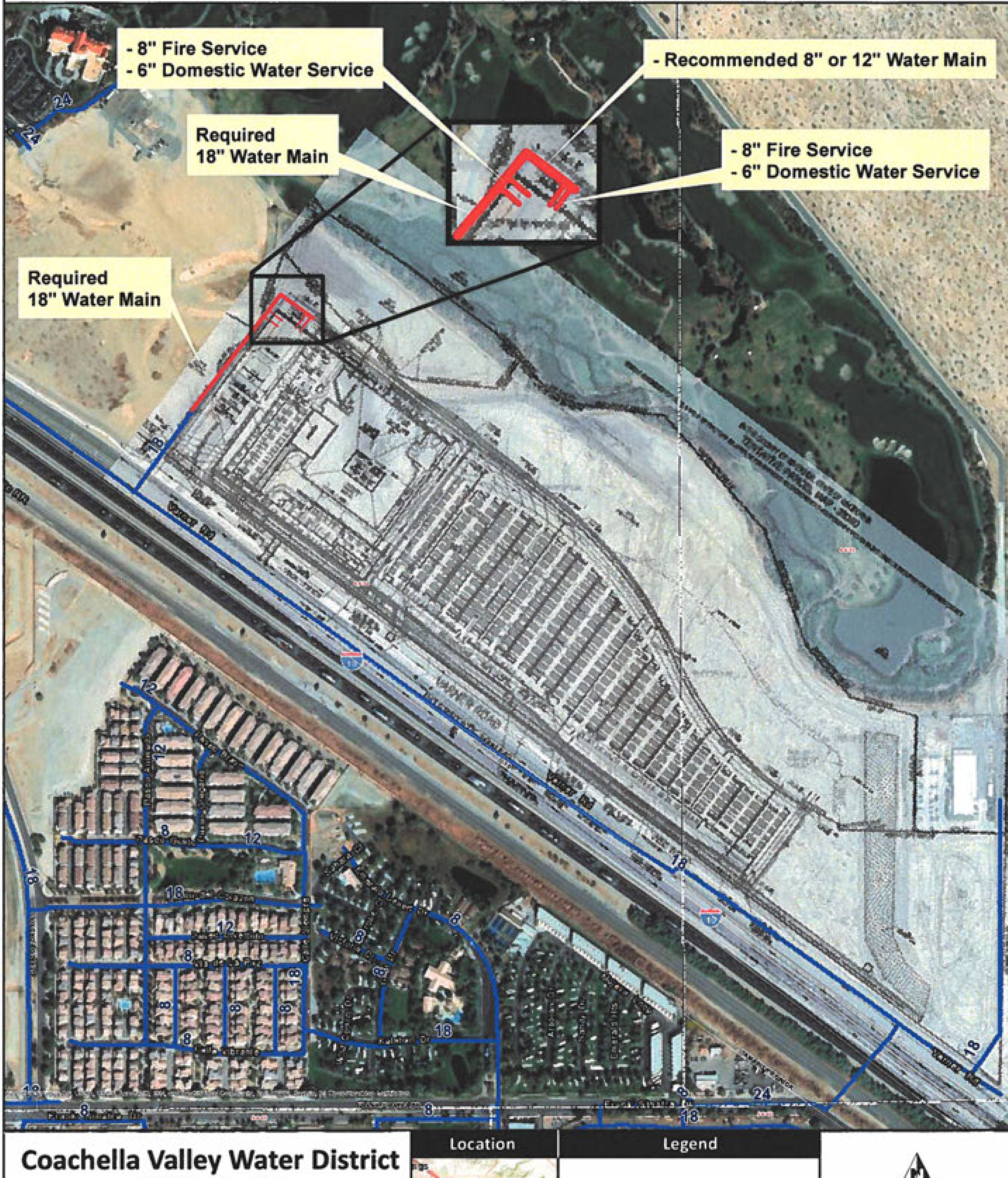
JAN 7 2020
CVWD

Classic Club/Delfino Resort Parcels-Exhibit A

The Delfino Property is Depicted as Lots 2, 3, 4, 6, 7, 8, 9, 10 of Tract Map No. 34484 below



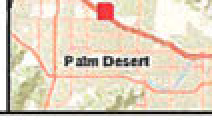
Tract No. 38040 Palm Springs Arena-Exhibit B



Coachella Valley Water District

75515 Hovley Lane East
Palm Desert, CA 92211
www.cvwd.org
Ph. (760) 398-2661
Fx. (760) 568-1789

Location



Legend

Required 12" Water Main
Exist. Water Main

Feet
0 530

File Name: PS Arena.mxd File Location: J:\ENGCAD\TempMikeM\Hector-Hydraulic Model Exhibits\
Date Updated: Wednesday, January 6, 2021 @ 4:46:05 PM Updated By: JL0493 Department: CVWD Engineering - GIS/CAD

G3

Water Supply Assessment Review

GENERAL MANAGER
Jim Barrett

CLERK OF THE BOARD
Sylvia Bermudez

ASSISTANT GENERAL MANAGER
Robert Cheng

ASSISTANT GENERAL MANAGER
Dan Charlton

March 24, 2021

Tony Locacciato, AICP
Partner
Meridian Consultants
706 S. Hill Street, 11th Floor
Los Angeles, CA 90014

Dear Mr. Locacciato:

Subject: Water Supply Assessment/Water Supply Verification, NorthStar Golf Resort, Retail Village and Technology Park

The subject Water Supply Assessment and Water Supply Verification (WSA/WSV) for the NorthStar Golf Resort, Retail Village and Technology Park (Project) provided an assessment of the Project's anticipated water demand and verification of the availability of sufficient water supplies during normal, single-dry, and multiple-dry years over a 20-year projection, considering existing and planned future water demands of the Coachella Valley Water District (CVWD). The CVWD Board of Directors approved this WSA/WSV in its regular meeting of January 10, 2006.

Meridian Consultants submitted a letter dated February 16, 2021, which detailed a proposed amendment to the Project, provided water demand estimates for the approved Project and for the Project with the proposed amendment, and asserted that the approved WSA/WSV remained valid. According to the February 16 letter and the associated water demand estimates provided, the amendment will reduce the Industrial Park land use from 69.6 acres to 28.2 acres in order to accommodate the addition of a 41.1-acre Arena and Event Center/Hockey Training Center land use. The WSA/WSV estimated a total Project water demand of 1,873 acre-feet per year (AFY). The February 16 letter included an updated estimate of the original Project's water demand, 1,348.5 AFY, as well as the estimated water demand for the Project with the proposed amendment, 1,269.2 AFY. Based on the estimates provided, the proposed amendment will reduce the Project's water demand by approximately 79.3 AFY.

CVWD staff has reviewed this WSA/WSV and the provided water demand estimates, and determined that there are no significant changes to the Project's water demand or availability of sufficient supplies. Sufficient water supplies exist, or will exist based on current water planning assumptions, to meet the projected demands of the Project. Based on this review and assessment, an update of the approved WSA/WSV is not required and the WSA/WSV is hereby extended through March 24, 2026.

This WSA/WSV will be reviewed every five years, or in the event that water planning assumptions have changed, until the Project completes construction to ensure it remains accurate and no significant changes to either the Project or available water supplies have occurred. The Project applicant shall notify CVWD when construction begins. If neither the Project applicant nor the lead agency contact CVWD within five years of this extension of the WSA/WSV, CVWD will assume that the Project no longer exists and the WSA/WSV will become invalid.

Approval of the WSA/WSV does not constitute an approval of the Project or relieve the Project from complying with all applicable existing and future state, county, city, and local ordinances or regulations including, but not limited to, the County of Riverside and CVWD landscape ordinances, and indoor water use performance standards provided in the California Water Code.

Sincerely,

Steve Bigley
Director of Environmental Services

cc: Russell Brady
Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92501

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File: 0483.05, 0126.2

Meridian Consultants

LOS ANGELES
706 S. Hill Street, 11th Floor
Los Angeles, CA 90014
(213) 335-3434

WESTLAKE VILLAGE
920 Hampshire Road, Suite A5
Westlake Village, CA 91361
(805) 367-5720

February 16, 2021

Coachella Valley Water District
800 Wilshire Blvd., Suite 860
Los Angeles, CA 90017

Attn: Melanie Garcia, Water Resources Associates
75515 Hovley Lane East
Palm Desert, CA 92211

Re: Riverside County NorthStar Specific Plan Amendment
Water Supply Assessment Review

Dear Ms. Garcia,

Meridian Consultants is assisting the Riverside County Transportation Land Use Management Agency (TLMA) with the environmental review of a proposed amendment to the approved NorthStar Specific Plan. This Specific Plan, approved in 2006, regulates the development of an approximate 466 acre area located immediately north of the I-10 Freeway between Cook Street and Washington Street. Prior to approval of the Specific Plan, the County prepared and certified EIR No. 470, which included a Water Supply Assessment/Water Supply Verification (WSA/WSV) approved by the Coachella Valley Water District (CVWD) in 2005. A copy of the approved WSA/WSV is attached for reference.

The approved Specific Plan allows development of a mix of commercial, light industrial and residential uses, along with a golf course and golf course clubhouse. Only the golf course and clubhouse have been developed since this Specific Plan was approved in 2006.

The amendment currently proposed to the Approved Specific Plan would create a new planning area in the NorthStar Specific Plan Area to allow the proposed Riverside County Arena. The proposed Specific Plan Amendment would reduce the amount of Business Park uses allowed by the Approved Specific Plan and allow the planned Arena.

At your request, the attached water demand estimates for the land uses permitted by the Approved NorthStar Specific Plan and the Proposed Specific Plan Amendment were prepared using CVWD's latest water demand estimate spreadsheet.

The firm handling the master planning of the NorthStar Project, the Altum Group, prepared the water demand estimates for all the uses allowed by the Approved Specific Plan and Proposed Specific Plan, with the exception of the Arena. The interior and landscape irrigation demand estimates for the Arena project were prepared by the designers of the Arena project.

As shown in the attachments, the total water demand for the land uses allowed by the Approved Specific Plan is 1,348.50 AFY. This updated estimate is lower than the estimated water demand of 1,983 AFY included in the 2005 WSA/WSV approved by CVWD.

The total water demand for the uses that would be permitted by the Proposed Specific Plan, with the amendment to allow the proposed Riverside County Arena project, is 1,269.23 AFY. The total water demand for the NorthStar Specific Plan would be reduced by 79.27 AFY with approval of the Proposed Specific Plan Amendment.

Because a WSA/WSV has already been prepared for the NorthStar Specific Plan Project and the proposed Specific Plan Amendment will result in a reduction of the amount of water needed for the project, based on the standards in Section 15155 (d) of the CEQA Guidelines below, an update of the approved WSA/WSV is not required:

15155. WATER SUPPLY ANALYSIS; CITY OR COUNTY CONSULTATION WITH WATER AGENCIES.

(d) If a water-demand project has been the subject of a water assessment, no additional water assessment shall be required for subsequent water-demand projects that were included in such larger water-demand project if all of the following criteria are met:

> (1) The entity completing the water assessment had concluded that its water supplies are sufficient to meet the projected water demand associated with the larger water-demand project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses; and
>
> (2) None of the following changes has occurred since the completion of the water assessment for the larger water-demand project:
>
> > (A) Changes in the larger water-demand project that result in a substantial increase in water demand for the water-demand project.
> >
> > (B) Changes in the circumstances or conditions substantially affecting the ability of the public water system or the water supplying city or county identified in the water assessment to provide a sufficient supply of water for the water demand project.
> >
> > (C) Significant new information becomes available which was not known and could not have been known at the time when the entity had reached the conclusion in subdivision (d)(1).

The Riverside County TLMA would appreciate CVWD's review of the updated water demand estimates for this project and concurrence with the determination that no update to the WSA/WSV by CVWD is needed. The updated water demand estimates will be incorporated into the County's environmental review document for the proposed Specific Plan Amendment.

Please contact me with any questions or suggestions related to this request. Thank you for your assistance with this matter.

Sincerely,

Tony Locacciato, AICP
Partner

cc: Russell Brady, Riverside County Transportation Land Use Management Agency

Attachments: 1 - 2005 CVWD WSA/WSV, NorthStar Golf Resort, Retail Village and Technology Park
2 - Approved NorthStar Specific Plan Water Demand Calculations
3 - Proposed NorthStar Specific Plan Water Demand Calculations

Attachment 1

2005 CVWD WSA/WSV, NorthStar Golf Resort, Retail Village and Technology Park

Water Supply Assessment

and

Water Supply Verification

NorthStar Golf Resort, Retail Village and Technology Park

May 26, 2005

Prepared for:

Coachella Valley Water District
P.O. Box 1058
Coachella, California 92236

Prepared by:

The Keith Companies, Inc.
Palm Desert Division
73-733 Fred Waring Drive, Suite 100
Palm Desert, California 92260

WATER SUPPLY ASSESSMENT AND VERIFICATION

NORTHSTAR GOLF RESORT, RETAIL VILLAGE AND TECHNOLOGY PARK

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INTRODUCTION

This Water Supply Assessment (WSA) and Verification (WSV) study has been prepared for the proposed NorthStar Golf Resort, Retail Village, and Technology Park project (NorthStar) or Specific Plan No. 343. NorthStar is Located north of I-10 freeway, south of Ramon Road, east of Cook Chase School Road, and west of Washington Street. The NorthStar Project is comprised of 455.8 acres. The Specific Plan proposes 9 planning areas, comprising recreational; golf course with clubhouse (245.9 acres), residential; mixed density housing (970 units, 50.5 acres), commercial office/retail (72.2 acres), industrial park (69.6 acres), and hotel (17.6 acres).

Pursuant to Senate Bill 610, a WSA is required for any residential "project" of more than 500 dwelling units. Senate Bill 221 requires written verification of the availability of water for any subdivision of property facilitating the development of more than 500 dwelling units. The project as proposed (970 dwelling units) qualifies as a "subdivision," as defined by Government Code Section 66473.7. Accordingly, the project developer is required to submit a written verification of water availability for this project.

The NorthStar project lies in unincorporated Riverside County north of the City of Palm Desert, located in the Coachella Valley in the Lower California Desert. Average high summer temperatures reach 107 degrees Fahrenheit, and the average low winter temperature is 39 degrees Fahrenheit. Precipitation typically occurs during the winter months with an annual mean rainfall of three to four inches. The potable water source for the Coachella Valley is a groundwater aquifer that underlies the Coachella Valley. The aquifer extends from the northwest edge of the Upper Valley near the City of Whitewater to the Salton Sea in the Lower Valley. The groundwater in the Coachella Valley is very high in quality and typically does not require any type of treatment. The NorthStar project lies in Improvement District No. 1 in the Upper Valley of the Coachella Valley. The NorthStar project is underlain by the Whitewater River subbasin, which encompasses 400 square miles and underlies much of the Coachella Valley. It generally extends from the junction of Interstate-10 and Highway-111, to the Salton See approximately 70 miles to the east. The subbasin is bounded on the north and east by the Garnet Hill and San Andreas faults, respectively, and on the south by the San Jacinto and Santa Rosa Mountains.

The proposed project is to be served potable water for domestic and small irrigation uses by the Coachella Valley Water District (CVWD). Golf Course irrigation water demands will be met by recycled water from the CVWD Water Reclamation Plant No. 10 (WRP 10), on Cook Street, supplemented with water from the All-American Canal system, which delivers Colorado River water to the Coachella Valley. These water sources will meet the needs of golf course irrigation demands for this project.

Resources used in preparation of this WSA and WSV include the adopted Coachella Valley Final Water Management Plan (CVWMP, reference 3), dated September 2002, the Urban Water Management Plan (UWMP, reference 1), City of Indio, June 2003, Metcaff and Eddy, Wastewater Engineering: Treatment, Disposal and Reuse, 3rd ed. (Metcaff and Eddy, reference 4), and City of Palm Desert, Comprehensive General Plan, March 2004 (CGP, reference 2).

PROJECT DESCRIPTION

The NorthStar project is a 455.75 acres master planned community, housing 970 dwelling units and a variety of commercial uses. It is Located in the Lower California desert in Riverside County. The western and southern boundaries are Cook Street and Varner Road, respectively, as shown in figure 1.

NorthStar is comprised of 9 individual planning areas. These distinct areas are made up of: an 18-hole golf course with clubhouse (245.9 acres); a 350 room hotel with golf course views, a spa, and meeting rooms (17.6 ac.); 54 golf view villas (7.3 ac.); 216 resort time share units (9.95 ac.); 550 golf view condominiums (33.2 ac.); a mixed use retail village, including 150 dwelling units (36.2 ac.); an industrial park for research and development (69.6 ac.); an executive office complex (16.0 ac.); and a community commercial area (20.0 ac.). These use designations can be seen in figure 2.

FIGURE 1: PROJECT LOCATION

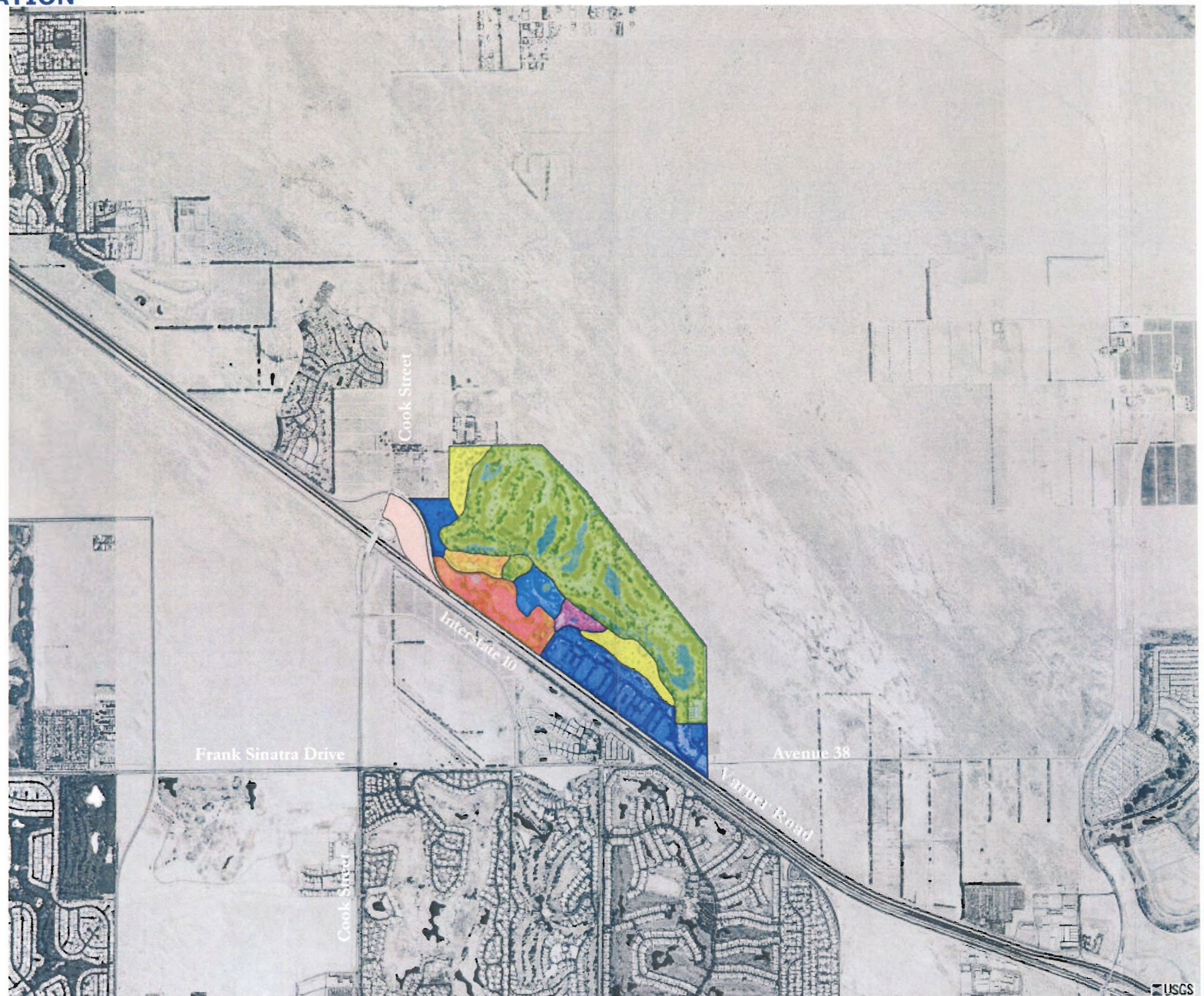
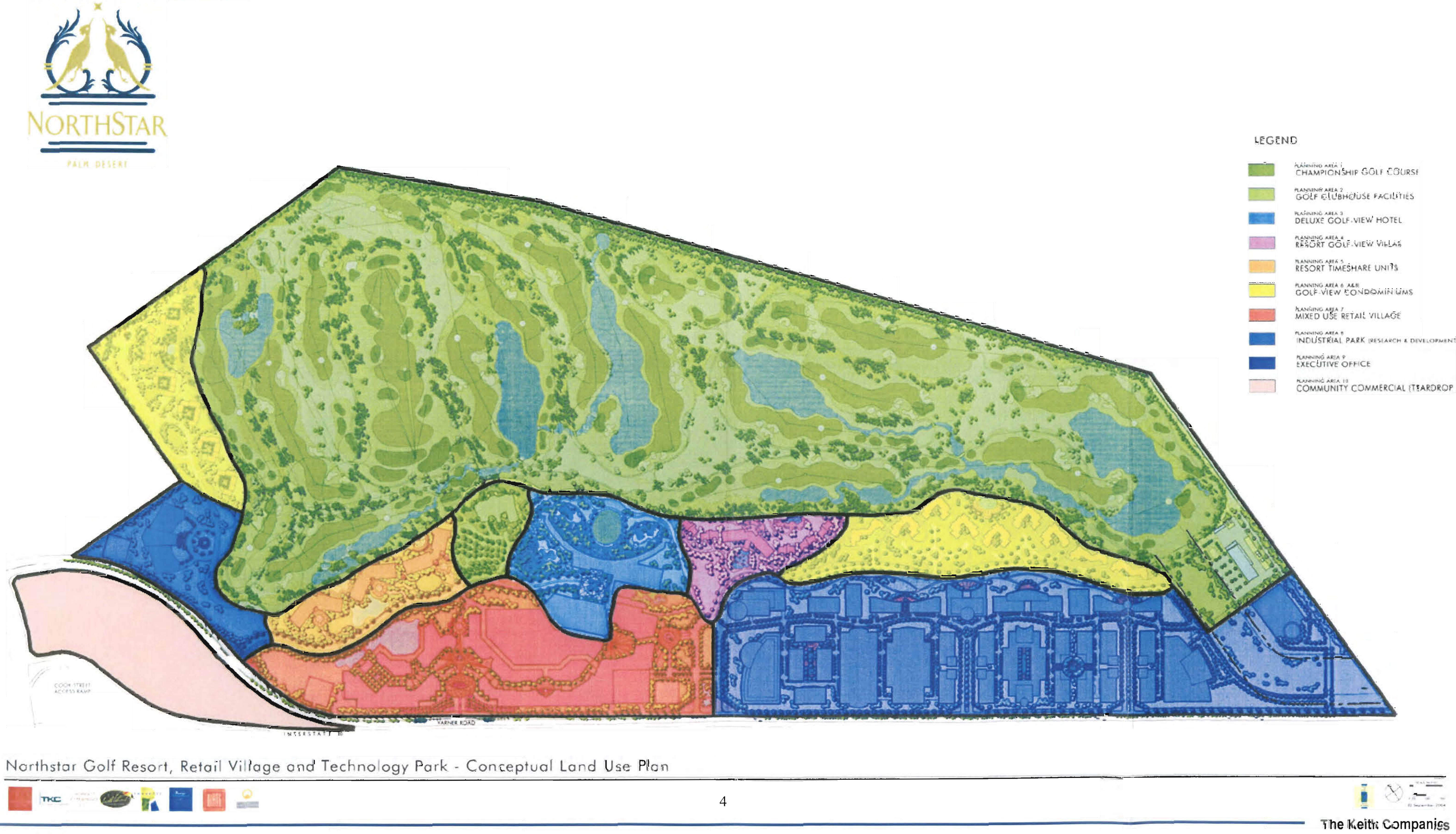


FIGURE 2: PROJECT SITE



PROJECT DEMANDS

The projected potable water demand for the development consists of domestic and some irrigation demands. The domestic demand includes interior water use for the proposed residential units, 350-room hotel, mixed use retail village, industrial park, executive office, community commercial, and clubhouse; it also includes fire-flow. The potable exterior and irrigation water demand for this project has several components: 1) residential 2) irrigation along major street frontage; 3) developed landscape in commercial and common areas.

The Coachella Valley Water District (CVWD) will supply the potable water to the site. This water is pumped from an aquifer that underlies the entire Coachella Valley. The aquifer water is high quality groundwater and typically does not require treatment.

As required by CVWD ordinance, the project developer will be required to provide on- or off-site well sites to meet potable water demands. Based on the proposed number of dwelling units, the developer may be required to provide improved wells on some of the dedicated well sites. The number of well sites and improved wells will be identified in the special agreement between CVWD and the developer.

The irrigation demand of the golf course and clubhouse will be met by tertiary treated water from Water Reclamation Plant No. 10 (WRP 10). This irrigation demand consists of water required for trees, greens, fairways, roughs, and clubhouse landscaped areas.

The NorthStar project is within the CVWMP study area. CVWD assumed substantial growth within this study area including the addition of 30 golf courses (CVWMP p. 4-4). The NorthStar project is part of these growth assumptions; therefore, in accordance to Government Code Section 66473.7 the CVWMP can be used as evidentiary record in the Water Supply Assessment (WSA) and Verification (WSV).

The estimated average water demand for the NorthStar Project was calculated using Metcaff and Eddy (4) design assumptions for various water uses. The max-day and peak-hour factors are taken from the City of Indio UWMP project master plan. The potable indoor and outdoor demands are based on linear growth till complete build, about 10 years, and are listed in Table 1a. The recycled water for the golf course and clubhouse demand is outlined in Table 1b. It is assumed that the golf course and clubhouse will be completed constructed within a year.

Table 1a - Projected Potable Water Demand for NorthStar Project

Domestic Water	Water Demand (GPD)											
Planning Area	2010 (50% complete)			2015 (100% complete)			2,020			2,025		
	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak
Golf Clubhouse *	1,200	1,800	3,600	2,400	3,600	7,200	2,400	3,600	7,200	2,400	3,600	7,200
Golf View Hotel	61,200	91,800	183,600	122,400	183,600	367,200	122,400	183,600	367,200	122,400	183,600	367,200
Golf View Villas	7,750	11,625	23,250	15,500	23,250	46,500	15,500	23,250	46,500	15,500	23,250	46,500
Resort Timeshare Units	24,800	37,200	74,400	49,600	74,400	148,800	49,600	74,400	148,800	49,600	74,400	148,800
Golf View Condominiums	63,100	94,650	189,300	126,200	189,300	378,600	126,200	189,300	378,600	126,200	189,300	378,600
Mixed Use Retail Village	35,350	53,025	106,050	70,700	106,050	212,100	70,700	106,050	212,100	70,700	106,050	212,100
Industrial Park	108,750	163,125	326,250	217,500	326,250	652,500	217,500	326,250	652,500	217,500	326,250	652,500
Executive Office	7,050	10,575	21,150	14,100	21,150	42,300	14,100	21,150	42,300	14,100	21,150	42,300
Community Commercial	2,550	3,825	7,650	5,100	7,650	15,300	5,100	7,650	15,300	5,100	7,650	15,300
TOTAL	311,750	467,625	935,250	623,500	935,250	1,870,500	623,500	935,250	1,870,500	623,500	935,250	1,870,500
Irrigation	Water Demand (GPD)											
Planning Area	2010 (50% complete)			2015 (100% complete)			2,020			2,025		
	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak
Golf Clubhouse *	0	0	0	0	0	0	0	0	0	0	0	0
Golf View Hotel	1,800	2,700	5,400	3,600	5,400	10,800	3,600	5,400	10,800	3,600	5,400	10,800
Golf View Villas	4,500	6,750	13,500	9,000	13,500	27,000	9,000	13,500	27,000	9,000	13,500	27,000
Resort Timeshare Units	5,100	7,650	15,300	10,200	15,300	30,600	10,200	15,300	30,600	10,200	15,300	30,600
Golf View Condominiums	20,450	30,675	61,350	40,900	61,350	122,700	40,900	61,350	122,700	40,900	61,350	122,700
Mixed Use Retail Village	14,850	22,275	44,550	29,700	44,550	89,100	29,700	44,550	89,100	29,700	44,550	89,100
Industrial Park	16,800	25,200	50,400	33,600	50,400	100,800	33,600	50,400	100,800	33,600	50,400	100,800
Executive Office	8,200	12,300	24,600	16,400	24,600	49,200	16,400	24,600	49,200	16,400	24,600	49,200
Community Commercial	8,200	12,300	24,600	16,400	24,600	49,200	16,400	24,600	49,200	16,400	24,600	49,200
TOTAL	79,900	119,850	239,700	159,800	239,700	479,400	159,800	239,700	479,400	159,800	239,700	479,400
TOTAL POTABLE WATER DEMAND (Domestic + Irrigation)												
	391,650	587,475	1,174,950	783,300	1,174,950	2,349,900	783,300	1,174,950	2,349,900	783,300	1,174,950	2,349,900

Notes: gpd = gallons per day
** Irrigation served by reclaimed water, see Table 1B.*

Table 1b - Projected Recycled[a] Water Demand for NorthStar Project

Land Use / Development	Water Demand (GPD)											
	2010 (100% complete)			2,015			2,020			2,025		
	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak	Average	Max	Peak
Golf Clubhouse												
Landscaped Areas	11,500	17,250	23,000	11,500	17,250	23,000	11,500	17,250	23,000	11,500	17,250	23,000
Arid Landscaping	3,200	4,800	6,400	3,200	4,800	6,400	3,200	4,800	6,400	3,200	4,800	6,400
18-hole Golf Course												
Fairways	713,000	1,069,500	1,426,000	713,000	1,069,500	1,426,000	713,000	1,069,500	1,426,000	713,000	1,069,500	1,426,000
Tees/Greens	65,300	97,950	130,600	65,300	97,950	130,600	65,300	97,950	130,600	65,300	97,950	130,600
Arid Landscaping	193,700	290,550	387,400	193,700	290,550	387,400	193,700	290,550	387,400	193,700	290,550	387,400
TOTAL	986,700	1,480,050	1,973,400	986,700	1,480,050	1,973,400	986,700	1,480,050	1,973,400	986,700	1,480,050	1,973,400

Notes: gpd = gallons per day
(a) water from the CVWD Water Reclamation Plant No. 10, which is supplemented with Canal Water

TOTAL WATER NEEDED*:	1,770,000 GPD
	1,229 GPM

*Sum of Potable (Table 1a) and Recycled (Table 1b) Average demands at total build out.

EXISTING WATER SUPPLIES

Since the early part of this century, the Coachella Valley has been dependent on groundwater as a primary source of domestic water supply. Groundwater has historically been used to supply water for crop irrigation, fish farms, duck clubs, golf courses, greenhouses, industrial uses, and municipalities in the Coachella Valley. The Project potable water source will be the Coachella Valley Aquifer.

In addition to groundwater, CVWD has additional water sources including imported water, recycled water and a small amount of surface water. These sources are described below. Although they are not the primary sources, these additional water sources are used to mitigate the yearly overdraft of the groundwater. Recycled water from the CVWD Cook Street Wastewater Treatment Plant (WRP 10) is available and will be used for irrigation water on the golf course.

Groundwater

The Coachella Valley has depended on groundwater as its primary source of water supply since the first settling of the valley. The groundwater aquifer is large and it is roughly estimated to store 30 million acre-feet (10 trillion gallons) of water. Through its groundwater modeling, Coachella Valley Water District (CVWD) estimates that the aquifer stores approximately 25 million acre-feet of water in the first 1,000 feet below ground surface, much of which originates from runoff from adjacent mountains. Table 2 illustrates the amount of groundwater produced by CVWD in the past 7 years. The entire Coachella Valley uses this aquifer as its source of domestic water.

Table 2 - CVWD Groundwater Production

Year	Upper Valley Ac-ft/yr	Lower Valley Ac-ft/yr	Total Ac-ft/yr
1997	75,934	16,546	92,481
1998	84,294	17,621	101,914
1999	86,132	21,144	107,276
2000	93,532	22,179	115,711
2001	92,933	22,569	115,502
2002	97,854	23,511	121,366
2003	93,837	25,863	119,700

The aquifer can be described as a giant tilted bathtub full of sand, with the high end at the northwest edge of the Coachella Valley near the City of Whitewater and the low end at the Salton Sea. The aquifer underlies the cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella, and the unincorporated communities of Thousand Palms, Thermal, Bermuda Dunes, Oasis and Mecca.

Table 3 shows historical groundwater use in the Coachella Valley in 1936 and 1999. By 1999, groundwater use in the Coachella Valley had increased by more than four times the use in 1936. Groundwater supplied about 56 percent of the total 1999 demand (93 percent in the Upper Valley and 38 percent in the Lower Valley). In 1936, groundwater supplied nearly 96 percent of the total water demand. The total groundwater use in 1996 was about 350,000 acre-feet per year. Groundwater use has increased steadily to present use levels. The demand for groundwater in the Coachella Valley has annually exceeded the limited natural recharge of the groundwater basin.

Table 3 - Summary of Historical Water Supplies (acre-feet per year)

	1936			1999		
	Upper Valley	Lower Valley	Total	Upper Valley	Lower Valley	Total
Canal Water	0	0	0	1,400	274,900	276,300
Groundwater	15,500	76,800	92,300	207,800	168,300	376,100
Surface Water	4,000	0	4,000	6,900	0	6,900
Recycled Water	0	0	0	8,100	0	8,100
Fish Farm Effluent	0	0	0	0	1,500	1,500
Total Supply	**19,500**	**76,800**	**96,300**	**224,400**	**444,700**	**668,900**

SOURCE: CVWD, Coachella Valley Water Management Plan, September 2002, p. 3-7.

The overdraft condition of the Valley has caused groundwater levels to decrease more than 60 feet in portions of the Lower Valley and raised concerns about water quality degradation and land subsidence. Groundwater levels in the Upper Valley have also decreased substantially, except in areas where artificial recharge has successfully raised water levels (i.e., at the Whitewater Spreading Facility). The CVWD is working to replenish the groundwater aquifer, and is in the initial stages of commencing a full-scale replenishment project, which will increase its long-term water supply.

Groundwater in the Coachella Valley aquifer has not been adjudicated. The CVWD shares a common groundwater source with other Public Water Systems including Desert Water Agency (DWA), the City of Indio, the City of Coachella, and the Myoma Dunes Mutual Water Company. Other groundwater users include some individual residents, farmers, golf courses, businesses and commercial facilities.

Groundwater production is anticipated to increase in the future; therefore, the CVWD plans on additional water supply sources to meet the demands of future growth within its service area. Three additional water supply sources are being considered to meet the demands for future growth, and provide for supply redundancy. These supply sources are Metropolitan Water District of Southern California (MWD) Projects (groundwater supply enhancements, exchange water, advance water deliveries), recycled water, and water transfers.

Surface Water

Surface water supplies come from several local rivers and streams, including the Whitewater River, Snow Creek, Falls Creek and Chino Creek. In 1999, surface water supplied approximately three percent of water supply to the Upper Valley to meet municipal demand, and nearly none to the Lower Valley. Because surface water supply is affected by variations in annual precipitation, the annual supply is highly variable. Since 1936, the estimated historical surface water supply has ranged from approximately 4,000 to 9,000 acre-feet per year.

Canal Water

The Coachella Canal is a branch of the All-American Canal that brings Colorado River water into the Imperial and Coachella Valleys. The service area for canal water delivery under the CVWD contract with the U.S. Bureau of Reclamation is defined as Improvement District No. 1 (ID-1). Historically, CVWD has received approximately 330,000 ac-ft/yr of Priority 3a of Colorado River water. This source of water is considered reliable through execution of the recent Quantification Settlement Agreement (QSA) on the Colorado River.

A QSA was approved in October 2003 between the CVWD, Metropolitan Water District of Southern California (MWD), Imperial Irrigation District (IID) and the San Diego County Water Authority (SDCWA). The QSA quantifies CVWD's Colorado River water rights for up to the next 75 years. Under the QSA, CVWD will receive an increased water supply of Colorado River Water to about 456,000 ac-ft/yr, as shown on Table 4.

Table 4 - CVWD Deliveries Under the Quantification Settlement Agreement

Component	Acre-feet per year
Base Allotment	330,000
1988 MWD/IID Approval Agreement	20,000
Coachella Canal Lining (to MWD)	-26,000
To Miscellaneous/Indian PPRs	-3,000
IID/CVWD First Transfer	50,000
IID/CVWD Second Transfer	50,000
MWD SWP Transfer	35,000
Total Diversion at Imperial Dam	**456,000**

SOURCE: CVWD, Coachella Valley Water Management Plan, September 2002, p. 5-16.

Water from the Coachella Canal provides a significant water supply source for the Lower Valley. In 1999, Coachella Canal supplied over 60 percent of the water supply to the Lower Valley, but less than one percent of the water supply to the Upper Valley. Most of the water was used for crop irrigation in the Lower Valley.

CVWD continues to seek other sources of water to eliminate overdraft and to meet the needs of the Coachella Valley. CVWD is currently seeking additional long-term entitlements from other State Water Project (SWP) contractors and the permanent transfer of water rights from other water right holders; and will transfer some of these acquired rights to the Coachella Canal.

State Water Project (SWP) Exchange Water

CVWD and Desert Water Agency (DWA) are State Water Project (SWP) contractors. The SWP includes 660 miles of aqueduct and conveyance facilities, from Lake Oroville in the north to Lake Perris in the south. The SWP is contracted to deliver 4.1 million ac-ft/yr to 29 contracting agencies. CVWD's original entitlement to SWP water was 23,100 ac-ft/yr, while DWA's SWP contract is 38,100 ac-ft/year for a combined 61,200 ac-ft/yr. Recently, CVWD purchased 9,900 ac-ft of SWP entitlement from the Tulare Lake Basin Water Storage District to bring its SWP entitlement to 33,000 ac-ft.

For the past century, Coachella Valley has relied on the Coachella Valley aquifer for its main source of domestic as well as agricultural water. Under the CVWMP, the proportion of water from each of the current water supply sources will change significantly by 2035 relative to 1999 conditions. Table 5 shows the actual water supplies in 1999 as well as the proposed water supplies in 2015 and 2035.

Table 5 - Summary of Projected Water Supplies (acre-feet per year)

Source	1999	2015[a]	2035[a]
Canal Water			
Crop Irrigation	266,400	268,900	292,100
Golf Courses	7,500	34,000	35,300
Duck Clubs	600	600	600
Fish Farms	1,600	1,500	1,500
Recharge	3,000	45,800	80,000
Domestic	200	200	31,500
Groundwater[b]	282,500	201,400	183,200
Surface Water	6,900	5,900	5,900
SWP			
Recharge	90,600	81,300	103,000
Irrigation	0	39,700	37,000
Recycled Water			
Municipal	8,100	31,600	38,100
Fish Farm	1,500	4,900	4,900
Ag. Drainage	0	8,000	11,000
Total Supply:	**668,900**	**723,800**	**824,100**

[a] Includes 35,000 acre-feet per year of SWP entitlement water delivered through the Coachella Canal.
[b] Groundwater supply is total groundwater pumpage less artificial recharge.
SOURCE: CVWD, Coachella Valley Water Management Plan, September 2002, p. 5-16.

WATER CONSERVATION

The Coachella Valley Water District has several water conservation programs, with plans to begin others to be consistent with current guidelines established by the California Department of Water Resources, Cal-Nevada section of the American Water Works Association, and other agencies that have been created in recent years to encourage water conservation. Palm Desert also promotes using drought-tolerant landscaping and desert plants to encourage water conservation.

Historically groundwater has been used for most of the irrigation requirements of the golf courses in the Upper and Lower Valleys. According to the CVWMP, golf courses will rely more heavily on canal and recycled water in the future. All new golf courses will be required to use recycled water for irrigation. Likewise, agricultural uses would shift to canal water. Groundwater will only be used as source of drinking water in the future.

WATER SUPPLY RELIABILITY

With a combined 25 million ac-ft of storage, the aquifer is sufficient to supply the Project and other present and anticipated needs for one or multiple dry years for over the next 20 years. The CVWMP shows that groundwater demand by municipal and industrial uses was 204,000 ac-ft/yr in 1999 and projects that this demand will increase to 246,200 ac-ft/yr by 2015 and 339,500 ac-ft/yr by 2035 (Table 5-4, CVWMP, p. 5-16). The demands of this Project are within the CVWMP projected demands on the aquifer.

CVWD has adopted and is implementing the CVWMP to eliminate overdraft in the aquifer. As the CVWMP progresses, the aquifer will remain a reliable source of water for the foreseeable future. The Project will participate in the CVWMP by paying a Supplemental Imported Water Supply Charge (SIWSC), which will be used to offset costs associated with purchasing new water supplies.

CONCLUSION

All of the domestic water will be supplied by the groundwater aquifer. Irrigation for the golf course and clubhouse will be supplied by the Water Reclamation Plant No. 10 on Cook Street. Based on the information in this WSA there is more than enough water to supply the water requirements of the City and this project. The historic water availability of supply was reviewed from 1936 to 1999, in the CVWMP. In 1936, the groundwater supply from the aquifer in both the Upper and Lower Valley was 92,300 acre-feet. In 1999, the same supply was 376,100 acre-feet.

The CVWD is currently working to replenish the aquifer; this will assist in the long-term health of the aquifer and the available water supply for the whole valley. In addition, the CVWD will need to continue its water conservation efforts to ensure that the total amount of water used will not negatively impact the aquifer. CVWD should take steps to increase wastewater recycling, tertiary treatment for irrigational purposes. The use of recycled water would decrease the amount of groundwater required to meet the demands on the Coachella Valley aquifer.

This document verifies that the water supply for the NorthStar Project is sufficient, as required by California Government Code 66473.7.

VERIFICATION OF WATER SUPPLY

General

As discussed previously, this project is subject to a Water Supply Verification (WSV) as outlined in Government Code Section 66473.7.

Water Source

The water supply for this Project is from the Coachella Valley aquifer, as well as recycled water from the CVWD water recycling plant on Avenue Cook Street, augmented with canal water.

Supporting Documentation

Government Code Section 66473.7 (c) permits the use of an UWMP, the Project's WSA, and other acceptable water supply reliability information.

This WSV relies on the IWA UWMP, City of Palm Desert Comprehensive General Plan, Metcaff and Eddy's *Wastewater Engineering* and the CVWMP as discussed in the WSA.

Factors of Reliability

General

Government Code Section 66473.7 (a) requires that all of the following factors be considered: (1) The availability of the supply over the last 20 years, (2) the applicability of an urban water shortage contingency found in the UWMP, (3) the reduction of water supply to a specific user by ordinance or resolution, and (4) the reasonable amount of water that can be relied upon from specified supply projects such as SWP and Colorado River agreements.

Historical Availability of Supply

The CVWMP reviews the historical use of the groundwater from 1936 to 1999. In 1936, the groundwater supply from the aquifer in both the Upper and Lower Valley was 92,300 ac-ft. In 1999, the same supply was 376,100 ac-ft.

Water Shortage Contingency

The UWMP determined that there is no need for a water shortage contingency in the foreseeable future. The main challenge for the aquifer is reducing the aquifer demands and increasing the aquifer recharge. These challenges can be addressed over a longer time-period and are not affected by short-term drought conditions.

Reduction of Water Supply

There will not be a reduction of water supply to any user due to this Project.

SWP and Colorado River Water

The QSA and other agreements have been signed that will provide additional Colorado River and SWP water to the valley.

Impacts on Other Projects

This Project is within the scope and range of the CVWMP. This Project will not have an impact on agricultural and industrial users. In addition, this Project will not affect the water supply for any lower-income housing projects.

Rights to Groundwater

As stated in the WSA, the Coachella Valley aquifer has not been adjudicated. CVWD has the right to extract the groundwater as required to supply this Project.

Verification

This document verifies the water supply for the NorthStar Project as required by California Government Code 66473.7.

REFERENCES

1. City of Indio, Urban Water Management Plan, June 2003
2. City of Palm Desert, Comprehensive General Plan, March 2004
3. Coachella Valley Final Water Management Plant, September 2002
4. Metcaff and Eddy, Wastewater Engineering: Treatment, Disposal and Reuse, 3rd ed. McGraw-Hill 1991.

LIST OF ACRONYMS

AC-FT	Acre Feet
AC-FT/YR	Acre-Feet per Year
CEQA	California Environmental Quality Act
CVWD	Coachella Valley Water District
CVWMP	Coachella Valley Water Management Plan
DWA	Desert Water Agency
DWR	Department of Water Resources
GPD	Gallons Per Day
ID-1	CVWD's Improvement District No. 1
IID	Imperial Irrigation District
MGD	Million Gallons per Day
MWD	Metropolitan Water District of Southern California
QSA	Quantification Settlement Agreement
SDCWA	San Diego County Water Authority
SWP	State Water Project
UWMP	Urban Water Management Plan
VSD	Valley Sanitation District
WSA	Water Supply Assessment
WSV	Water Supply Verification
WRP 10	Water Reclamation Plant No. 10 (Cook Street Wastewater Treatment Plant)

Attachment 2

Approved NorthStar Specific Plan Water Demand Calculations

Only enter data into the highlighted cells

Table 5-1: Project Land Use Summary
Column B - Enter the name/number of each Planning Area
Column C - Enter the Specific Plan/Land Use designation for each Planning Area
Column D - Enter the land area in acres for each Planning Area
Column E - Enter the target density in Estimated Dwelling Units (EDUs) per acre for each Planning Area
Column F - Enter the total number of EDUS for each Planning Area
Column G - Enter the total number of non-residential building area in square feet for each Planning Area

Table 6-1: Projected Indoor Residential Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the number EDUs for each Planning Area
Column E - Enter the number of Estimated Occupants per Home as found in the *CA Department of Finance Table 2: E-5 City/County Population and Housing Estimates*

Table 6-2: Projected Indoor Commercial and Industrial Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total indoor area in square feet for all commercial, industrial, and institutional buildings for each Planning Area
Column D - Enter the total number of rooms/keys for each Hotel/Villa/Residence Hall for each Planning Area
Column E - Enter the maximum interior floor space per unit in square feet for each Planning Area
Column F - Enter the water demand factor as found in the *AWWA Commercial and Institutional End Uses of Water*
Restaurant = 331 gallons/ft^2/year; Hotel = 115 gallons/day/room; Office Building = 35 gallons/ft2/year; Supermarket = 80 gallons/ft2/year; School = 93 gallons/ft2/year;

Table 6-3: Projected Outdoor Irrigation Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total landscaped area in square feet for each Planning Area
Column D - Enter the annual ETo in inches per year as found in *CVWD Landscape Ordinance 1302.4 Appendix C*

Table 6-4: Projected Outdoor Recreational Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total water feature area in square feet for each Planning Area
Column D - Enter the annual ETo in inches per year as found in *CVWD Landscape Ordinance 1302.4 Appendix C*
Column E - Enter 1.1 for a stationary body of water, and 1.2 for a moving body of water, as found in *CVWD Landscape Ordinance 1302.4*
A Technical Memorandum providing custom calculations for a water feature may be substituted for this table and provided as an Appendix

Table 6-5: Projected Total Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the total indoor residential water demand from Table 6-1 for each Planning Area
Column E - Enter the total indoor non-residential water demand from Table 6-2 for each Planning Area
Column F - Enter the total outdoor irrigation water demand from Table 6-3 for each Planning Area
Column G - Enter the total outdoor water feature water demand from Table 6-4 for each Planning Area

Table 6-6: Projected Water Sources
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the water source for the indoor residential water demand for each Planning Area
Column E - Enter the water source for the indoor non-residential water demand for each Planning Area
Column F - Enter the water source for the outdoor irrigation water demand for each Planning Area
Column G - Enter the water source for the outdoor water feature water demand for each Planning Area
Select one of the following: CVWD Domestic Water System, Private Well, CVWD Non-Potable Water System, Other

Table 5-1: Project Land Use Summary

Panning Area	Specific Plan/Land Use Designation	Land Area (Acres)	Target Density (EDUs/Acre)	Estimated Dwelling Units (EDUs)	Non-Residential Building Area(ft^2)
Planning Area 1	18-hole Golf Course	240	0	0	0
Planning Area 2	Golf Clubhouse	5.9	0	0	81,000
Planning Area 3	Golf View Hotel	17.6	0	0	407,000
Planning Area 4	Golf View Villas	7.3	7.4	54	0
Planning Area 5	Resort Timeshare Units	9.95	21.7	216	0
Planning Area 6	Golf View Condominiums	33.2	16.6	550	0
Planning Area 7	Mixed Use Retail Village	36.2	0	150	400,000
Planning Area 8	Industrial Park	69.6	0	0	1,200,000
Planning Area 9	Executive Office	16	0	0	230,000
Planning Area 10	Community Commercial	20	0	0	100,000
Total		**455.75**		**970**	**2418000**

Table 6-1: Projected Indoor Residential Water Demand

Planning Area	Land Area (Acres)	Estimated Dwelling Units (EDUs)	Estimated Occupants per Home [1]	Gallons per Day (gpd) per Occupant [2]	gpd/EDU	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	240	0	0	55	0	0	0
Planning Area 2	5.9	0	0	55	0	0	0
Planning Area 3	17.6	0	0	55	0	0	0
Planning Area 4	7.3	54	3.19	55	175.45	9474.3	10.61257906
Planning Area 5	9.95	216	3.19	55	175.45	37897.2	42.45031625
Planning Area 6	33.2	550	3.19	55	175.45	96497.5	108.091083
Planning Area 7	36.2	150	3.19	55	175.45	26317.5	29.47938628
Planning Area 8	69.6	0	0	55	0	0	0
Planning Area 9	16	0	0	55	0	0	0
Planning Area 10	20	0	0	55	0	0	0
Total	**455.75**	**970**				**170186.5**	**190.6333646**

[1] CA Department of Finance Table 2: E-5 City/County Population and Housing Estimates, [2020] for unincorporated Riverside County

[2] CA Indoor Water Use Performance Standard

Note: 3.24 occupants per home is a conservative estimate for Riverside County; the surrounding jurisdcitions (i.e. Palm Springs, Palm Desert, Desert Hot Springs) have estimated occupants per home that range from 1.99 to 3.08.

Table 6-2: Projected Indoor Commercial and Industrial Water Demand

Planning Area	Indoor Area (ft^2)	Number of Rooms	Maximum Interior Floor Space per Unit	Water Demand Factor [1]	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	0				0.00	0.00
Planning Area 2	81,000			40.15	8,910.00	9.98
Planning Area 3	407,000	350	1,000	94.9	105,820.00	118.53
Planning Area 4	0				0.00	0.00
Planning Area 5	0				0.00	0.00
Planning Area 6	0				0.00	0.00
Planning Area 7	400,000			40.15	44,000.00	49.29
Planning Area 8[2]	1,200,000			35	115,068.49	128.89
Planning Area 9	230,000			69.35	43,700.00	48.95
Planning Area 10	100,000			40.15	11,000.00	12.32
Total	**2418000**	**350**			**328,498.49**	**367.97**

[1] AWWARF Commercial and Industrial End Uses of Water, 2000.

[2] Industrial water use is based on previously CVWD approved WSA/WSV (10/27/20) for the Coachella Airport Business Park which used 35g/sqft/day)

Table 6-3: Projected Outdoor Irrigation Water Demand

Planning Area	Landscaped Area (ft^2)	ETo (in/yr) [1]	ETAF [2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	10,454,400.00	76.46	0.45	0.62	611,004.97	684.41
Planning Area 2	0.00	76.46	0.45	0.62	0.00	0.00
Planning Area 3	229,997.00	76.46	0.45	0.62	13,442.12	15.06
Planning Area 4	95,396.00	76.46	0.45	0.62	5,575.40	6.25
Planning Area 5	130,027.00	76.46	0.45	0.62	7,599.40	8.51
Planning Area 6	433,858.00	76.46	0.45	0.62	25,356.73	28.40
Planning Area 7	157,687.00	76.46	0.45	0.62	9,215.98	10.32
Planning Area 8	303,178.00	76.46	0.45	0.62	17,719.17	19.85
Planning Area 9	174,240.00	76.46	0.45	0.62	10,183.42	11.41
Planning Area 10	87,120.00	76.46	0.45	0.62	5,091.71	5.70
Total	**12,065,903.00**				**705,188.89**	**789.91**

[1] Reference Evapotranspiration (ETo) for ETo Zone [4] from CVWD Landscape Ordinance 1302.4, Appendix C

[2] Evapotranspiration Adjustment Factor (ETAF) from CVWD Landscape Ordinance 1302.4, Appendix D

[3] Conversion Factor from CVWD Landscape Ordinance 1302.4, Appendix D

Table 6-4: Projected Outdoor Recreational Water Demand

Planning Area	Water Feature Area (ft^2)	ETo (in/yr) [1]	Plant Factor [2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
N/A - No Water Features/Recreational Water Demands				0.62	0	0
Total	**0**				**0**	**0**

[1] Reference Evapotranspiration (ETo) for ETo Zone [X] from CVWD Landscape Ordinance 1302.4, Appendix C

[2] Plant Factor of 1.1 for a stationary body of water, and 1.2 for a moving body of water, from CVWD Landscape Ordinance 1302.4 [A Technical Memorandum providing custom calculations for a water feature may be substituted for this table and provided as an Appenc

[3] Conversion Factor from CVWD Landscape Ordinance 1302.4, Appendix D

Table 6-5: Projected Total Water Demand

Planning Area	Land Area (Acres)	Indoor Residential Demand (AFY)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Outdoor Recreational Demand (AFY)	Total Water Demand (AFY)
Planning Area 1	240			684.41		684.41
Planning Area 2	5.9		9.98			9.98
Planning Area 3	17.6		118.53	15.06		133.59
Planning Area 4	7.3	10.61		6.25		16.86
Planning Area 5	9.95	42.45		8.51		50.96
Planning Area 6	33.2	108.09		28.40		136.49
Planning Area 7	36.2	29.48	49.29	10.32		89.09
Planning Area 8	69.6		128.89	19.85		148.74
Planning Area 9	16		48.95	11.41		60.36
Planning Area 10	20		12.32	5.70		18.02
Total	**455.75**	**190.63**	**367.96**	**789.91**	**0.00**	**1,348.50**

Table 6-6: Projected Water Sources

Planning Area	Land Area (Acres)	Indoor Residential Demand	Indoor Commercial and Industrial Demand	Outdoor Irrigation Demand	Outdoor Water Feature Demand
Planning Area 1	240			CVWD Recycled Water System	N/A - No Water Feature
Planning Area 2	5.9		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 3	17.6		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 4	7.3	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 5	9.95	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 6	33.2	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 7	36.2	CVWD Domestic Water System	CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 8	69.6		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 9	16		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 10	20		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature

Attachment 3

Proposed NorthStar Specific Plan Water Demand Calculations

Only enter data into the highlighted cells

Table 5-1: Project Land Use Summary
Column B - Enter the name/number of each Planning Area
Column C - Enter the Specific Plan/Land Use designation for each Planning Area
Column D - Enter the land area in acres for each Planning Area
Column E - Enter the target density in Estimated Dwelling Units (EDUs) per acre for each Planning Area
Column F - Enter the total number of EDUS for each Planning Area
Column G - Enter the total number of non-residential building area in square feet for each Planning Area

Table 6-1: Projected Indoor Residential Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the number EDUs for each Planning Area
Column E - Enter the number of Estimated Occupants per Home as found in the *CA Department of Finance Table 2: E-5 City/County Population and Housing Estimates*

Table 6-2: Projected Indoor Commercial and Industrial Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total indoor area in square feet for all commercial, industrial, and institutional buildings for each Planning Area
Column D - Enter the total number of rooms/keys for each Hotel/Villa/Residence Hall for each Planning Area
Column E - Enter the maximum interior floor space per unit in square feet for each Planning Area
Column F - Enter the water demand factor as found in the *AWWA Commercial and Institutional End Uses of Water*
Restaurant = 331 gallons/ft^2/year; Hotel = 115 gallons/day/room; Office Building = 35 gallons/ft2/year; Supermarket = 80 gallons/ft2/year; School = 93 gallons/ft2/year;

Table 6-3: Projected Outdoor Irrigation Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total landscaped area in square feet for each Planning Area
Column D - Enter the annual ETo in inches per year as found in *CVWD Landscape Ordinance 1302.4 Appendix C*

Table 6-4: Projected Outdoor Recreational Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the total water feature area in square feet for each Planning Area
Column D - Enter the annual ETo in inches per year as found in *CVWD Landscape Ordinance 1302.4 Appendix C*
Column E - Enter 1.1 for a stationary body of water, and 1.2 for a moving body of water, as found in *CVWD Landscape Ordinance 1302.4*
A Technical Memorandum providing custom calculations for a water feature may be substituted for this table and provided as an Appendix

Table 6-5: Projected Total Water Demand
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the total indoor residential water demand from Table 6-1 for each Planning Area
Column E - Enter the total indoor non-residential water demand from Table 6-2 for each Planning Area
Column F - Enter the total outdoor irrigation water demand from Table 6-3 for each Planning Area
Column G - Enter the total outdoor water feature water demand from Table 6-4 for each Planning Area

Table 6-6: Projected Water Sources
Column B - Enter the name/number of each Planning Area
Column C - Enter the land area in acres for each Planning Area
Column D - Enter the water source for the indoor residential water demand for each Planning Area
Column E - Enter the water source for the indoor non-residential water demand for each Planning Area
Column F - Enter the water source for the outdoor irrigation water demand for each Planning Area
Column G - Enter the water source for the outdoor water feature water demand for each Planning Area
Select one of the following: CVWD Domestic Water System, Private Well, CVWD Non-Potable Water System, Other

Table 5-1: Project Land Use Summary

Panning Area	Specific Plan/Land Use Designation	Land Area (Acres)	Target Density (EDUs/Acre)	Estimated Dwelling Units (EDUs)	Non-Residential Building Area(ft^2)
Planning Area 1	18-hole Golf Course	240	0	0	0
Planning Area 2	Golf Clubhouse	5.9	0	0	81,000
Planning Area 3	Golf View Hotel	17.6	0	0	407,000
Planning Area 4	Golf View Villas	7.3	7.4	54	0
Planning Area 5	Resort Timeshare Units	9.95	21.7	216	0
Planning Area 6	Golf View Condominiums	33.2	16.6	550	0
Planning Area 7	Mixed Use Retail Village	36.2	0	150	400,000
Planning Area 8	Industrial Park	28.2	0	0	381,035
Planning Area 9	Executive Office	16	0	0	230,000
Planning Area 10	Community Commercial	20	0	0	100,000
Planning area 11	Arena and Event Center/Hockey Training Center	41.1	0	0	295,000
Total		**455.45**		**970**	**1894035**

Table 6-1: Projected Indoor Residential Water Demand

Planning Area	Land Area (Acres)	Estimated Dwelling Units (EDUs)	Estimated Occupants per Home [1]	Gallons per Day (gpd) per Occupant [2]	gpd/EDU	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	240	0	0	55	0	0	0
Planning Area 2	5.9	0	0	55	0	0	0
Planning Area 3	17.6	0	0	55	0	0	0
Planning Area 4	7.3	54	3.19	55	175.45	9474.3	10.61257906
Planning Area 5	9.95	216	3.19	55	175.45	37897.2	42.45031625
Planning Area 6	33.2	550	3.19	55	175.45	96497.5	108.091083
Planning Area 7	36.2	150	3.19	55	175.45	26317.5	29.47938628
Planning Area 8	28.2	0	0	55	0	0	0
Planning Area 9	16	0	0	55	0	0	0
Planning Area 10	20	0	0	55	0	0	0
Planning Area 11	41.4	0	0	55	0	0	0
Total	**455.75**	**970**				**170186.5**	**190.6333646**

[1] CA Department of Finance Table 2: E-5 City/County Population and Housing Estimates, [2020] for unincorporated Riverside County

[2] CA Indoor Water Use Performance Standard

Note: 3.19 occupants per home is a conservative estimate for Riverside County; the surrounding jurisdcitions (i.e. Palm Springs, Palm Desert, Desert Hot Springs) have estimated occupants per home that range from 1.99 to 3.08.

Table 6-2: Projected Indoor Commercial and Industrial Water Demand

Planning Area	Indoor Area (ft^2)	Number of Rooms	Maximum Interior Floor Space per Unit	Water Demand Factor [1]	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	0				0.00	0.00
Planning Area 2	81,000			40.15	8,910.00	9.98
Planning Area 3	407,000	350	1,000	94.9	105,820.00	118.53
Planning Area 4	0				0.00	0.00
Planning Area 5	0				0.00	0.00
Planning Area 6	0				0.00	0.00
Planning Area 7	400,000			40.15	44,000.00	49.29
Planning Area 8[2]	381,035			35	36,537.60	40.93
Planning Area 9	230,000			69.35	43,700.00	48.95
Planning Area 10	100,000			40.15	11,000.00	12.32
Planning Area 11[3]	395,000				0.00	15.15
Total	**1994035**	**350**			**249,967.60**	**295.15**

[1] AWWARF Commercial and Industrial End Uses of Water, 2000. (hotel use = .26g/sqft/day; retail = .11g/sqft/day; indutrial = 0.096 g/sqft/day; office = 0.19 g/sqft/day)

[2] Industrial water use is based on previously CVWD approved WSA/WSV (10/27/20) for the Coachella Airport Business Park which used the 35g/sqft/year)

[3] Indoor Water Demand Estimates for Planning Area 11 are contained in the attached Estimated Usage Calculation Worksheet

Table 6-3: Projected Outdoor Irrigation Water Demand

Planning Area	Landscaped Area (ft^2)	ETo (in/yr) [1]	ETAF [2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
Planning Area 1	10,454,400.00	76.46	0.45	0.62	611,004.97	684.41
Planning Area 2	0.00	76.46	0.45	0.62	0.00	0.00
Planning Area 3	229,997.00	76.46	0.45	0.62	13,442.12	15.06
Planning Area 4	95,396.00	76.46	0.45	0.62	5,575.40	6.25
Planning Area 5	130,027.00	76.46	0.45	0.62	7,599.40	8.51
Planning Area 6	433,858.00	76.46	0.45	0.62	25,356.73	28.40
Planning Area 7	157,687.00	76.46	0.45	0.62	9,215.98	10.32
Planning Area 8	122,839.00	76.46	0.45	0.62	7,179.30	8.04
Planning Area 9	174,240.00	76.46	0.45	0.62	10,183.42	11.41
Planning Area 10	87,120.00	76.46	0.45	0.62	5,091.71	5.70
Planning Area 11[4]						5.35
Total	**11,885,564.00**				**694,649.02**	**783.46**

[1] Reference Evapotranspiration (ETo) for ETo Zone [4] from CVWD Landscape Ordinance 1302.4, Appendix C

[2] Evapotranspiration Adjustment Factor (ETAF) from CVWD Landscape Ordinance 1302.4, Appendix D

[3] Conversion Factor from CVWD Landscape Ordinance 1302.4, Appendix D

[4] Outdoor Water Demand Estimates for Planning Area 11 are contained in the attached Coachella Valley Arena Estimated Water Use Estimate

Table 6-4: Projected Outdoor Recreational Water Demand

Planning Area	Water Feature Area (ft^2)	ETo (in/yr) [1]	Plant Factor [2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
N/A - No Water Features/Recreational Water Demands				0.62	0	0
Total	0				0	0

[1] Reference Evapotranspiration (ETo) for ETo Zone [X] from CVWD Landscape Ordinance 1302.4, Appendix C

[2] Plant Factor of 1.1 for a stationary body of water, and 1.2 for a moving body of water, from CVWD Landscape Ordinance 1302.4 [A Technical Memorandum providing custom calculations for a water feature may be substituted for this table and provided as an Appen

[3] Conversion Factor from CVWD Landscape Ordinance 1302.4, Appendix D

Table 6-5: Projected Total Water Demand

Planning Area	Land Area (Acres)	Indoor Residential Demand (AFY)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Outdoor Recreational Demand (AFY)	Total Water Demand (AFY)
Planning Area 1	240			684.41		684.41
Planning Area 2	5.9		9.98			9.98
Planning Area 3	17.6		118.53	15.06		133.59
Planning Area 4	7.3	10.61		6.25		16.86
Planning Area 5	9.95	42.45		8.51		50.96
Planning Area 6	33.2	108.09		28.40		136.49
Planning Area 7	36.2	29.48	49.29	10.32		89.09
Planning Area 8	28.2		40.93	8.04		48.97
Planning Area 9	16		48.95	11.41		60.36
Planning Area 10	20		12.32	5.70		18.02
Planning Area 11	41.40		15.15	5.35		20.50
Total	**455.75**	**190.63**	**295.15**	**783.45**	**0.00**	**1,269.23**

Table 6-6: Projected Water Sources

Planning Area	Land Area (Acres)	Indoor Residential Demand	Indoor Commercial and Industrial Demand	Outdoor Irrigation Demand	Outdoor Water Feature Demand
Planning Area 1	240			CVWD Recycled Water System	N/A - No Water Feature
Planning Area 2	5.9		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 3	17.6		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 4	7.3	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 5	9.95	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 6	33.2	CVWD Domestic Water System		CVWD Recycled Water System	N/A - No Water Feature
Planning Area 7	36.2	CVWD Domestic Water System	CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 8	28.2		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 9	16		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 10	20		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature
Planning Area 11	41.4		CVWD Domestic Water System	CVWD Recycled Water System	N/A - No Water Feature

G4

NorthStar Specific Plan 343
Amendment Project

COACHELLA VALLEY WATER DISTRICT
Established in 1918 as a public agency

GENERAL MANAGER
Jim Barrett

ASSISTANT GENERAL MANAGER
Robert Cheng

CLERK OF THE BOARD
Sylvia Bermudez

ASSISTANT GENERAL MANAGER
Dan Charlton

February 19, 2021

Russell Brady
Planning Department
Riverside County
4080 Lemon Street 12th Floor
Riverside, CA 92501

Dear Mr. Brady:

Subject: <u>Northstar Specific Plan 343 Amendment Project</u>

This letter is in response to your letter dated February 4, 2021 regarding the Northstar Project (Project). The Riverside County (County) Transportation and Land Management Agency (TLMA) is updating the information and analysis in EIR No. 470 (approved in 2006) to address the proposed Specific Plan Amendment (SPA) for the Project.

Your letter requests that the Coachella Valley Water District (CVWD) provide an opinion on if the SPA triggers substantial changes to the original proposed drainage conditions.

The original Planning Area was designated as Industrial Park in the 2006 approval. The proposed change to the Planning Area modifies the designation from Industrial Park to Arena & Event Center. Although the Project drainage report indicates that this change will increase the proposed flood discharge from the site by 1-acre foot, the general Project area drainage patterns have not changed from the 2006 approval.

As such (while the Project will still require review and approval of mitigation measures for the proposed project in general, and for the increased flow due to the proposed Planning Area change), CVWD sees no substantial change in regional flow patterns relative to the 2006 approved Specific Plan that would require major revisions to EIR No. 470.

If you have any questions please call Scott Strosnider, Associate Engineer, extension 2737.

Sincerely,

David S. Wilson, P.E., CCM
Engineering Manager

SS:sl\Eng\SW\2021\Feb\Rivco Comment Response-Northstar :

APPENDIX H
Sign Lighting Report

JOHN E. MUSE, P.E.
8644 Portola Court, 14D
Huntington Beach, CA 92646

February 2, 2021

It has been proposed to construct the Riverside County Arena near the intersection of Cook Street and Varner Road north of Palm Desert in Riverside County, California. There would be light emitting diode (LED) signs (for definitions, see Appendix A) for the Interstate 10 Freeway Sign (FS) near the center main entrance, plus a monument sign at both the northwestern end (MS1) and the southeastern end (MS2) of the property. All three signs would be double-sided.

The LED portion of each side of the Freeway Sign would be approximately 36 feet wide by 40 feet high. The potential brightness of the new sign, at full power, would be 12,000 nits (candela per square meter). However, at night, the power would be a maximum of 15 percent (creating 1800 nits). The viewing angles for the sign will be plus/minus 80 degrees horizontally and plus/minus 90 degrees vertically.

As detailed in Appendix B, computer calculations were based on the proposed sign power, the sphere size at different distances, the horizontal and vertical angles, etc. The maximum nighttime illuminance, for the closest significant residential and commercial locations affected, would be as follows:

Residential; 110 Paseo Bravo	655 Feet	0.11 Footcandles = 1.18 lux
Commercial; 75-450 Gerald Ford, Suite 310	1443 Feet	0.02 Footcandles = 0.22 lux
Commercial; Classic Club Golf, Bellatrix	1683 Feet	0.02 Footcandles = 0.22 lux

For comparison, the level of illuminance on a stairway is normally required to be an average of 1.0 footcandles (10.76 lux) minimum. The level of illuminance in a normal mall parking lot is often more than 3.0 footcandles (32.29 lux). The illuminance on the floor inside a movie theater is normally required to be a minimum of 0.2 footcandles (2.15 lux).

The LED portion of the northwestern Monument Sign (MS1) is approximately 43 feet high, 17 feet high on the top and 26 feet wide on the bottom. As detailed in Appendix C, computer calculations were based on the proposed sign power, the sphere size at different distances, the horizontal and vertical angles, etc. The maximum nighttime illuminance, for the closest significant locations affected, would be as follows:

Commercial; 75-400 Gerald Ford, Suite 104	756 Feet	0.05 Footcandles = 0.54 lux
Commercial; 75-178 Gerald Ford, Suite A5	764 Feet	0.05 Footcandles = 0.54 lux

The southeastern Monument Sign (MS2) would be the same as MS1. As detailed in Appendix D, computer calculations were based on the proposed sign power, the sphere size at different distances, the horizontal and vertical angles, etc. The maximum nighttime illuminance, for the closest significant residential and commercial locations affected, would be as follows:

Commercial; 76-110 Unmarked Road to East	713 Feet	0.06 Footcandles = 0.65 lux
Residential; 38075 Crocus Lane	753 Feet	0.05 Footcandles = 0.54 lux

Since the signs are near the Interstate Route 10 Freeway, the signs will comply with all California Department of Transportation (Caltrans) requirements, such as having static frame images, four second minimum frame display times, etc.

There are no absolute national standards for the maximum nighttime illuminance above ambient (non-sign) light levels. I understand that Riverside County does not have any specific standards for nighttime illuminance of signs. Some nearby cities use a maximum nighttime illuminance from the sign of 0.3 footcandles for residential areas and 1.0 footcandles for commercial areas. The proposed signs will meet that standard.

Therefore, based on the information available to date, from a level of illumination and light pollution standpoint, the proposed signs would not cause excessive illuminance or light pollution on the surrounding area.

Respectfully submitted,

JOHN MUSE & ASSOCIATES, INC.

John E. Muse

John E. Muse, P.E.

California Registered Civil Eng. C31250

APPENDIX A
DEFINITIONS

LED-Light-emitting diode, a semiconductor diode that glows when a voltage is applied.

Nits-A SI (metric) unit of the intensity of visible light produced, where one nit is equal to one candela per square meter.

Candela-The SI (metric) base unit of luminous intensity; that is, power emitted by a light source in a particular direction, weighted by the luminosity function (a standardized model of the sensitivity of the human eye to different wavelengths, also known as the luminous efficiency function). A common candle emits light with a luminous intensity of roughly one candela.

Lumen-The unit of luminous flux in the International System, equal to the amount of light given out through a solid angle by a source of one candela intensity radiating equally in all directions.

Illumination-Providing light.

Light-The bright form of energy that makes it possible to see objects.

Illuminance-The measure of incident light: the amount of light, evaluated according to its capacity to produce visual stimulation that reaches a unit of surface area during a unit of time.

Footcandle (fc)-A unit of illuminance on a surface that is everywhere one foot from a uniform point source of light of one candle and equal to one lumen per square foot.

Lux-A unit of illuminance equal to the direct illumination on a surface that is everywhere one meter from a uniform point source of one candle intensity and equal to one lumen per square meter.

Foot-lambert or **footlambert** (fL)-A unit of luminance in United States customary units and some other unit systems. A foot-lambert equals 1/PI candela per square foot (fc), or 3.426 candela per square meter (nits).

Hawthorne "D" Distance-Square root (sign area * 100).

Light pollution-The excessive or obtrusive addition of artificial light to an area.

By: John Muse, California Registered Civil Engineer C31250

APPENDIX B

Illumination Calculations
Palm Springs Arena
Freeway Sign
John E. Muse, P.E., C31250

Given

LED Sign Width	**36.00**	Feet	=	10.97	Meters		
LED Sign Height	**40.00**	Feet	=	12.19	Meters		
Elevation of Sign Base	**100.00**	Feet, Used	=	30.48	Meters		
Top of LED Sign, Distance Above Ground	**65.00**	Feet	=	19.81	Meters		
Sign Output-Maximum	**12000.00**	Nits	=	12000.00	Candella/Sq Meter		
Daytime Power Percentage	**90.00%**						
Night Power Percentage	**15.00%**						
Cutoff Angle-Horizontal	**160.00**	Degrees	=	0.89	Semi-sphere Coverage		
Cutoff Angle-Vertical Upward	**90.00**	Degrees	cos Opp Ang =	1.00000	tan Opp Ang =		0
Cutoff Angle-Vertical Downward	**90.00**	Degrees	cos Opp Ang =	1.00000	tan Opp Ang =		0
LED Spacing	**10**	mm-C/C	=	30.48	Per Foot		
Distance 1	**655.00**	Feet	=	199.64	Meters	Res, 110 Paseo Bravo	
Distance 2	**1443.00**	Feet	=	439.83	Meters	Com, 75-450 Gerald Ford St, St 310	
Distance 3	**1683.00**	Feet	=	512.98	Meters	Com, Classic Club Golf, Bellatrix	
Distance 4	**217.83**	Feet	=	66.39	Meters	Illlumination = 1.0	
Distance 5	**308.06**	Feet	=	93.90	Meters	Illlumination = 0.5	
Distance 6	**487.08**	Feet	=	148.46	Meters	Illlumination = 0.2	
Distance 7	**500.00**	Feet	=	152.40	Meters	Distance 7	
Distance 8	**750.00**	Feet	=	228.60	Meters	Distance 8	
Distance 9	**1000.00**	Feet	=	304.80	Meters	Distance 9	

Calculate

Pi	**3.141592654**					
Area of Sign	**1440.00**	Sq Feet	=	**133.78**	Sq Meters	
Elevation of Top of LED Screen	**165.00**	Feet	=	**50.29**	Meters	
Center of LED Sign, Distance Above Ground	**45.00**	Feet	=	**13.72**	Meters	
Maximum Sign Output, Day	**10800.00**	Nits	=	**1444828.08**	Candela	
Maximum Sign Output, Night	**1800.00**	Nits	=	**240804.68**	Candela	
Night Output	**240804.68**	Lumens				
Number of LED Lamps	**1337243**	Each				
Output per Lamp	**0.18**	Lumens/Bulb				
Conversion Factor	**1.00**	Footcandle	=	**10.7639**	Lux	
Variability Multiplication Factor	**1.10**		**1.10**			
Area Sphere Dist 1	**5,391,287.15**	Sq Feet	=	500,866.97	Sq Meters	Res, 110 Paseo Bravo
Area Hemi-Sphere Dist 1	**2,695,643.58**	Sq Feet	=	250,433.48	Sq Meters	
Night Illumination At Dist 1	**0.1005**	Footcandles	=	1.0817	Lux	
1.10 Value	**0.11**	Footcandles	=	**1.18**	Lux	
Area Sphere Dist 2	**26,166,312.65**	Sq Feet	=	2,430,929.99	Sq Meters	Com, 75-450 Gerald Ford St, St 310
Area Hemi-Sphere Dist 2	**13,083,156.32**	Sq Feet	=	1,215,465.00	Sq Meters	
Night Illumination At Dist 2	**0.0207**	Footcandles	=	0.2229	Lux	
1.10 Value	**0.02**	Footcandles	=	**0.22**	Lux	
Area Sphere Dist 3	**35,594,106.54**	Sq Feet	=	3,306,800.70	Sq Meters	Com, Classic Club Golf, Bellatrix
Area Hemi-Sphere Dist 3	**17,797,053.27**	Sq Feet	=	1,653,400.35	Sq Meters	
Night Illumination At Dist 3	**0.0152**	Footcandles	=	0.1638	Lux	
1.10 Value	**0.02**	Footcandles	=	**0.22**	Lux	
Area Sphere Dist 4	**596,273.14**	Sq Feet	=	55,395.59	Sq Meters	Illlumination = 1.0
Area Hemi-Sphere Dist 4	**298,136.57**	Sq Feet	=	27,697.79	Sq Meters	
Night Illumination At Dist 4	**0.9087**	Footcandles	=	9.7808	Lux	
1.10 Value	**1.00**	Footcandles	=	**10.76**	Lux	
Area Sphere Dist 5	**1,192,560.68**	Sq Feet	=	110,792.51	Sq Meters	Illlumination = 0.5
Area Hemi-Sphere Dist 5	**596,280.34**	Sq Feet	=	55,396.26	Sq Meters	
Night Illumination At Dist 5	**0.4543**	Footcandles	=	4.8903	Lux	
1.10 Value	**0.50**	Footcandles	=	**5.38**	Lux	
Area Sphere at Dist 6	**2,981,332.80**	Sq Feet	=	276,974.88	Sq Meters	Illlumination = 0.2
Area Hemi-Sphere Dist 6	**1,490,666.40**	Sq Feet	=	138,487.44	Sq Meters	
Night Illumination At Dist 6	**0.1817**	Footcandles	=	1.9562	Lux	
1.10 Value	**0.20**	Footcandles	=	**0.63**	Foot-Lamberts	
Area Sphere at Dist 7	**3,141,592.65**	Sq Feet	=	291,863.51	Sq Meters	Distance 7
Area Hemi-Sphere Dist 7	**1,570,796.33**	Sq Feet	=	145,931.75	Sq Meters	
Night Illumination At Dist 7	**0.1725**	Footcandles	=	1.8564	Lux	
1.10 Value	**0.19**		=	**0.60**	Foot-Lamberts	
Area Sphere at Dist 8	**7,068,583.47**	Sq Feet	=	656,692.89	Sq Meters	Distance 8
Area Hemi-Sphere Dist 8	**3,534,291.74**	Sq Feet	=	328,346.45	Sq Meters	
Night Illumination At Dist 8	**0.0767**	Footcandles	=	0.8251	Lux	
1.10 Value	**0.08**		=	**0.86**	Lux	
Area Sphere at Dist 9	**12,566,370.61**	Sq Feet	=	1,167,454.03	Sq Meters	Distance 9
Area Hemi-Sphere Dist 9	**6,283,185.31**	Sq Feet	=	583,727.02	Sq Meters	
Night Illumination At Dist 9	**0.0431**	Footcandles	=	0.4641	Lux	
1.10 Value	**0.05**		=	**0.54**	Lux	

APPENDIX C

Illumination Calculations
Palm Springs Arena
Monument Sign 1
John E. Muse, P.E., C31250

Given						
LED Sign Width	**21.50** Feet	=	6.55 Meters			
LED Sign Height	**43.00** Feet	=	13.11 Meters			
Elevation of Sign Base	**100.00** Feet, Used	=	30.48 Meters			
Top of LED Sign, Distance Above Ground	**40.00** Feet	=	12.19 Meters			
Sign Output-Maximum	**12000.00** Nits	=	12000.00 Candella/Sq Meter			
Daytime Power Percentage	**90.00%**					
Night Power Percentage	**15.00%**					
Cutoff Angle-Horizontal	**160.00** Degrees	=	0.89 Semi-sphere Coverage			
Cutoff Angle-Vertical Upward	**90.00** Degrees	cos Opp Ang =		1.00000	tan Opp Ang =	0
Cutoff Angle-Vertical Downward	**90.00** Degrees	cos Opp Ang =		1.00000	tan Opp Ang =	0
LED Spacing	**10** mm-C/C	=	30.48 Per Foot			
Distance 1	**756.00** Feet	=	230.43 Meters	Com, 75-400 Gerald Ford, St 104		
Distance 2	**764.00** Feet	=	232.87 Meters	Com, 75-178 Gerald Ford, St A5		
Distance 3	**174.11** Feet	=	53.07 Meters	Illlumination = 1.0		
Distance 4	**246.23** Feet	=	75.05 Meters	Illlumination = 0.5		
Distance 5	**389.32** Feet	=	118.66 Meters	Illlumination = 0.2		
Distance 6	**500.00** Feet	=	152.40 Meters	Distance 6		
Distance 7	**750.00** Feet	=	228.60 Meters	Distance 7		
Distance 8	**1000.00** Feet	=	304.80 Meters	Distance 8		
Distance 9	**2000.00** Feet	=	609.60 Meters	Distance 9		

Calculate				
Pi	**3.141592654**			
Area of Sign	**924.50** Sq Feet	=	**85.89** Sq Meters	
Elevation of Top of LED Screen	**140.00** Feet	=	**42.67** Meters	
Center of LED Sign, Distance Above Ground	**18.50** Feet	=	**5.64** Meters	
Maximum Sign Output, Day	**10800.00** Nits	=	**927599.69** Candela	
Maximum Sign Output, Night	**1800.00** Nits	=	**154599.95** Candela	
Night Output	**154599.95** Lumens			
Number of LED Lamps	**858705** Each			
Output per Lamp	**0.18** Lumens/Bulb			
Conversion Factor	**1.00** Footcandle	=	**10.7639** Lux	
Variability Multiplication Factor	**1.10**	**1.10**		
Area Sphere Dist 1	**7,182,133.20** Sq Feet	=	667,242.01 Sq Meters	Com, 75-400 Gerald Ford, St 104
Area Hemi-Sphere Dist 1	**3,591,066.60** Sq Feet	=	333,621.00 Sq Meters	
Night Illumination At Dist 1	**0.0484** Footcandles	=	0.5213 Lux	
1.10 Value	0.05 Footcandles	=	0.54 Lux	
Area Sphere Dist 2	**7,334,940.26** Sq Feet	=	681,438.25 Sq Meters	Com, 75-178 Gerald Ford, St A5
Area Hemi-Sphere Dist 2	**3,667,470.13** Sq Feet	=	340,719.12 Sq Meters	
Night Illumination At Dist 2	**0.0474** Footcandles	=	0.5105 Lux	
1.10 Value	0.05 Footcandles	=	0.54 Lux	
Area Sphere Dist 3	**380,940.63** Sq Feet	=	35,390.54 Sq Meters	Illlumination = 1.0
Area Hemi-Sphere Dist 3	**190,470.31** Sq Feet	=	17,695.27 Sq Meters	
Night Illumination At Dist 3	**0.9131** Footcandles	=	9.8289 Lux	
1.10 Value	1.00 Footcandles	=	10.76 Lux	
Area Sphere Dist 4	**761,889.16** Sq Feet	=	70,781.82 Sq Meters	Illlumination = 0.5
Area Hemi-Sphere Dist 4	**380,944.58** Sq Feet	=	35,390.91 Sq Meters	
Night Illumination At Dist 4	**0.4566** Footcandles	=	4.9144 Lux	
1.10 Value	0.50 Footcandles	=	5.38 Lux	
Area Sphere Dist 5	**1,904,685.58** Sq Feet	=	176,951.08 Sq Meters	Illlumination = 0.2
Area Hemi-Sphere Dist 5	**952,342.79** Sq Feet	=	88,475.54 Sq Meters	
Night Illumination At Dist 5	**0.1826** Footcandles	=	1.9658 Lux	
1.10 Value	0.20 Footcandles	=	2.15 Lux	
Area Sphere at Dist 6	**3,141,592.65** Sq Feet	=	291,863.51 Sq Meters	Distance 6
Area Hemi-Sphere Dist 6	**1,570,796.33** Sq Feet	=	145,931.75 Sq Meters	
Night Illumination At Dist 6	**0.1107** Footcandles	=	1.1918 Lux	
1.10 Value	0.12 Footcandles	=	0.38 Foot-Lamberts	
Area Sphere at Dist 7	**7,068,583.47** Sq Feet	=	656,692.89 Sq Meters	Distance 7
Area Hemi-Sphere Dist 7	**3,534,291.74** Sq Feet	=	328,346.45 Sq Meters	
Night Illumination At Dist 7	**0.0492** Footcandles	=	0.5297 Lux	
1.10 Value	0.05	=	0.16 Foot-Lamberts	
Area Sphere at Dist 8	**12,566,370.61** Sq Feet	=	1,167,454.03 Sq Meters	Distance 8
Area Hemi-Sphere Dist 8	**6,283,185.31** Sq Feet	=	583,727.02 Sq Meters	
Night Illumination At Dist 8	**0.0277** Footcandles	=	0.2980 Lux	
1.10 Value	0.03	=	0.32 Lux	
Area Sphere at Dist 9	**50,265,482.46** Sq Feet	=	4,669,816.13 Sq Meters	Distance 9
Area Hemi-Sphere Dist 9	**25,132,741.23** Sq Feet	=	2,334,908.06 Sq Meters	
Night Illumination At Dist 9	**0.0069** Footcandles	=	0.0745 Lux	
1.10 Value	0.01	=	0.11 Lux	

APPENDIX D

Illumination Calculations
Palm Springs Arena
Monument Sign 2
John E. Muse, P.E., C31250

Given

LED Sign Width	21.50	Feet	=	6.55	Meters		
LED Sign Height	43.00	Feet	=	13.11	Meters		
Elevation of Sign Base	100.00	Feet, Used	=	30.48	Meters		
Top of LED Sign, Distance Above Ground	50.00	Feet	=	15.24	Meters		
Sign Output-Maximum	12000.00	Nits	=	12000.00	Candella/Sq Meter		
Daytime Power Percentage	90.00%						
Night Power Percentage	15.00%						
Cutoff Angle-Horizontal	160.00	Degrees	=	0.89	Semi-sphere Coverage		
Cutoff Angle-Vertical Upward	90.00	Degrees	cos Opp Ang =	1.00000		tan Opp Ang =	0
Cutoff Angle-Vertical Downward	90.00	Degrees	cos Opp Ang =	1.00000		tan Opp Ang =	0
LED Spacing	10	mm-C/C	=	30.48	Per Foot		
Distance 1	713.00	Feet	=	217.32	Meters	Com, 76-100 Unmarked Road to East	
Distance 2	753.00	Feet	=	229.51	Meters	Res, 38075 Crocus Lane	
Distance 3	174.11	Feet	=	53.07	Meters	Illlumination = 1.0	
Distance 4	246.23	Feet	=	75.05	Meters	Illlumination = 0.5	
Distance 5	389.32	Feet	=	118.66	Meters	Illlumination = 0.2	
Distance 6	500.00	Feet	=	152.40	Meters	Distance 6	
Distance 7	750.00	Feet	=	228.60	Meters	Distance 7	
Distance 8	1000.00	Feet	=	304.80	Meters	Distance 8	
Distance 9	2000.00	Feet	=	609.60	Meters	Distance 9	

Calculate

Pi	**3.141592654**					
Area of Sign	**924.50**	Sq Feet	=	**85.89**	Sq Meters	
Elevation of Top of LED Screen	**150.00**	Feet	=	**45.72**	Meters	
Center of LED Sign, Distance Above Ground	**28.50**	Feet	=	**8.69**	Meters	
Maximum Sign Output, Day	**10800.00**	Nits	=	**927599.69**	Candela	
Maximum Sign Output, Night	**1800.00**	Nits	=	**154599.95**	Candela	
Night Output	**154599.95**	Lumens				
Number of LED Lamps	**858705**	Each				
Output per Lamp	**0.18**	Lumens/Bulb				
Conversion Factor	**1.00**	Footcandle	=	**10.7639**	Lux	
Variability Multiplication Factor	**1.10**		**1.10**			

Area Sphere Dist 1	**6,388,353.26**	Sq Feet	=	593,497.44	Sq Meters	Com, 76-100 Unmarked Road to East
Area Hemi-Sphere Dist 1	**3,194,176.63**	Sq Feet	=	296,748.72	Sq Meters	
Night Illumination At Dist 1	**0.0545**	Footcandles	=	0.5861	Lux	
1.10 Value	**0.06**	Footcandles	=	**0.65**	Lux	
Area Sphere Dist 2	**7,125,245.24**	Sq Feet	=	661,956.94	Sq Meters	Res, 38075 Crocus Lane
Area Hemi-Sphere Dist 2	**3,562,622.62**	Sq Feet	=	330,978.47	Sq Meters	
Night Illumination At Dist 2	**0.0488**	Footcandles	=	0.5255	Lux	
1.10 Value	**0.05**	Footcandles	=	**0.54**	Lux	
Area Sphere Dist 3	**380,940.63**	Sq Feet	=	35,390.54	Sq Meters	Illlumination = 1.0
Area Hemi-Sphere Dist 3	**190,470.31**	Sq Feet	=	17,695.27	Sq Meters	
Night Illumination At Dist 3	**0.9131**	Footcandles	=	9.8289	Lux	
1.10 Value	**1.00**	Footcandles	=	**10.76**	Lux	
Area Sphere Dist 4	**761,889.16**	Sq Feet	=	70,781.82	Sq Meters	Illlumination = 0.5
Area Hemi-Sphere Dist 4	**380,944.58**	Sq Feet	=	35,390.91	Sq Meters	
Night Illumination At Dist 4	**0.4566**	Footcandles	=	4.9144	Lux	
1.10 Value	**0.50**	Footcandles	=	**5.38**	Lux	
Area Sphere Dist 5	**1,904,685.58**	Sq Feet	=	176,951.08	Sq Meters	Illlumination = 0.2
Area Hemi-Sphere Dist 5	**952,342.79**	Sq Feet	=	88,475.54	Sq Meters	
Night Illumination At Dist 5	**0.1826**	Footcandles	=	1.9658	Lux	
1.10 Value	**0.20**	Footcandles	=	**2.15**	Lux	
Area Sphere at Dist 6	**3,141,592.65**	Sq Feet	=	291,863.51	Sq Meters	Distance 6
Area Hemi-Sphere Dist 6	**1,570,796.33**	Sq Feet	=	145,931.75	Sq Meters	
Night Illumination At Dist 6	**0.1107**	Footcandles	=	1.1918	Lux	
1.10 Value	**0.12**	Footcandles	=	**0.38**	Foot-Lamberts	
Area Sphere at Dist 7	**7,068,583.47**	Sq Feet	=	656,692.89	Sq Meters	Distance 7
Area Hemi-Sphere Dist 7	**3,534,291.74**	Sq Feet	=	328,346.45	Sq Meters	
Night Illumination At Dist 7	**0.0492**	Footcandles	=	0.5297	Lux	
1.10 Value	**0.05**		=	**0.16**	Foot-Lamberts	
Area Sphere at Dist 8	**12,566,370.61**	Sq Feet	=	1,167,454.03	Sq Meters	Distance 8
Area Hemi-Sphere Dist 8	**6,283,185.31**	Sq Feet	=	583,727.02	Sq Meters	
Night Illumination At Dist 8	**0.0277**	Footcandles	=	0.2980	Lux	
1.10 Value	**0.03**		=	**0.32**	Lux	
Area Sphere at Dist 9	**50,265,482.46**	Sq Feet	=	4,669,816.13	Sq Meters	Distance 9
Area Hemi-Sphere Dist 9	**25,132,741.23**	Sq Feet	=	2,334,908.06	Sq Meters	
Night Illumination At Dist 9	**0.0069**	Footcandles	=	0.0745	Lux	
1.10 Value	**0.01**		=	**0.11**	Lux	

APPENDIX I

Biological Resources Report

IMPERIAL IRRIGATION DISTRICT DISTRIBUTION LINE EXTENSION

CITY OF PALM DESERT, RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment Coachella Valley Multiple Species Habitat Conservation Plan Consistency Analysis

Prepared For:

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February 2021

IMPERIAL IRRIGATION DISTRICT DISTRIBUTION LINE EXTENSION

CITY OF PALM DESERT, RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment Coachella Valley Multiple Species Habitat Conservation Plan Consistency Analysis

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Travis J. McGill
Director

Thomas J. McGill, Ph.D.
Managing Director

February 2021

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APPENDIX

Appendix A Site Photographs
Appendix B Potentially Occurring Special-Status Biological Resources
Appendix C Section 4.4 of the CVMSHCP
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Section 1 Introduction

This report contains the findings of ELMT Consulting (ELMT) Habitat Assessment and Coachella Valley Multiple Species Habitat Conservation plan (CVMSHCP) Consistency Analysis for Imperial Irrigation District's (IID) Distribution Line Extension (proposed distribution alignment) located in the City of Palm Desert, Riverside County, California. ELMT biologist Jacob H. Lloyd Davies conducted a field survey and evaluated the condition of the habitat within the proposed distribution alignment on February 2, 2021.

The habitat assessment was conducted to characterize existing site conditions and assess the probability of occurrence of special-status[1] plant and wildlife species that could pose a constraint to implementation of the project. This report provides a detailed assessment of the suitability of the onsite habitat to support special-status plant and wildlife species that were identified by the California Natural Diversity Database (CNDDB) and other electronic databases as potentially occurring in the vicinity of the proposed distribution alignment.

1.1 PROJECT LOCATION

The proposed distribution alignment is generally located north and east of Interstate 10, southeast of State Route 62, and west and south of the Little San Bernardino Mountains in the City of Palm Desert, Riverside County, California (Exhibit 1, *Regional Vicinity*). The proposed distribution alignment is depicted on the Myoma quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series and borders Sections 27 and 28 of Township 4 South, Range 6 East (Exhibit 2, *Site Vicinity*). Specifically, the proposed distribution alignment is located at the northern terminus of Cook Street, north of Interstate 10, and extends north from the terminus of Cook Street for approximately 1,600 feet (refer to Exhibit 3, *Project Site*).

1.2 PROJECT DESCRIPTION

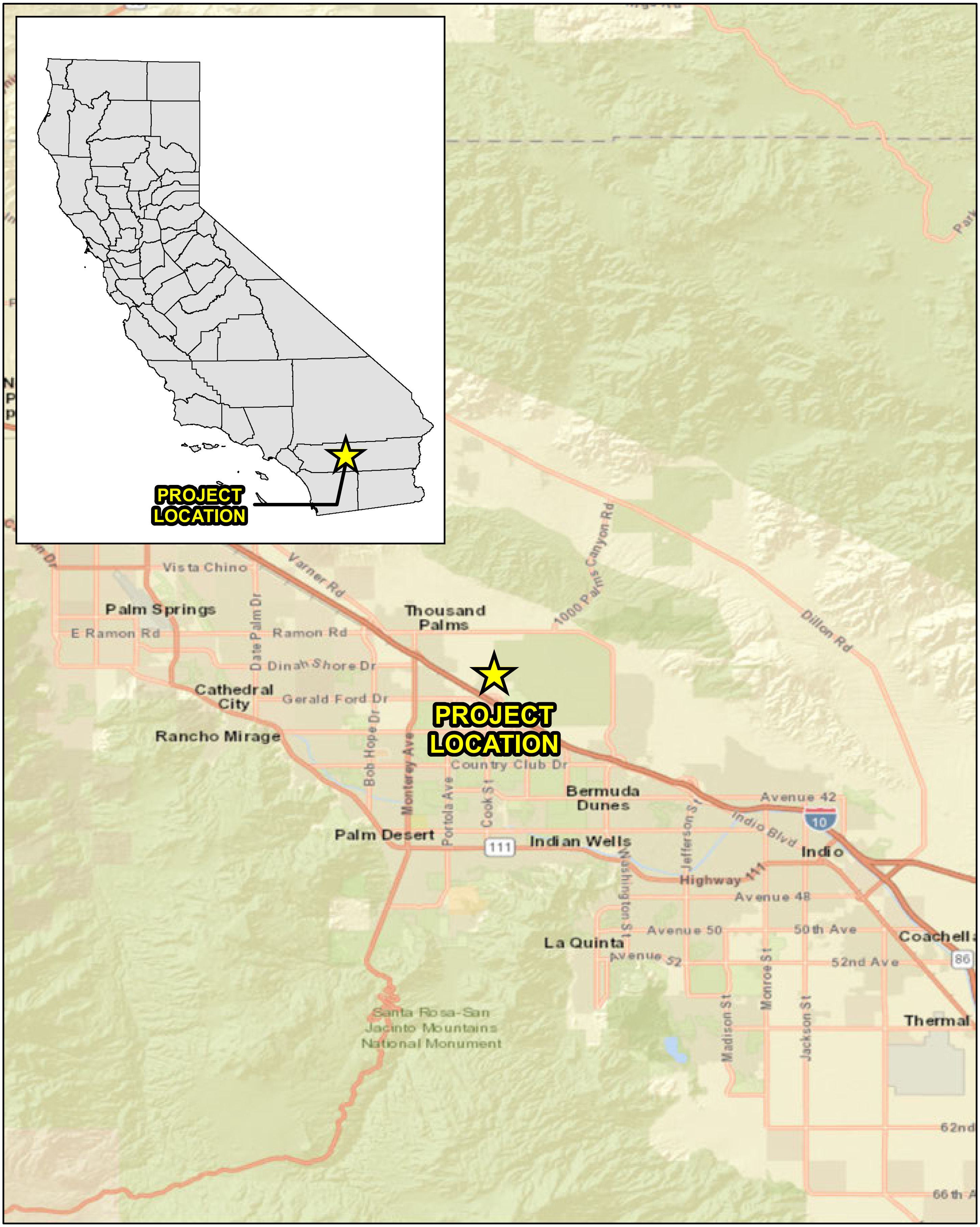
The proposed project will include the following:

1. The energy source will be the Edom Substation, which is located north of Varner Road, and west of Monterey Avenue. The Substation will not be expanding its footprint.
2. The customer will need to install 1,600 feet of conduit and the IID will need to install a conductor on the Cook Street alignment to connect the existing overhead line to the underground system at Chase School Road.
3. Approximately 11 poles will be installed, each new pole will be 40 foot tall poles, placed at a 6 foot depth along the 1,600 foot gap.

---

[1] As used in this report, "special-status" refers to plant and wildlife species that are federally or State listed, proposed, or candidates; CVMSHCP listed species; plant species that have been designated a CNPS Rare Plant Rank; and wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species.

4. The line extension would be straight between the two existing lines, 10 feet to cover the pole line. No work or poles within the Coachella Valley Preserve is anticipated. Construction area footprint would be an additional 30 feet to the west of the line.
5. Pathway and easements along 1,600 foot gap are individually owned by private parties.



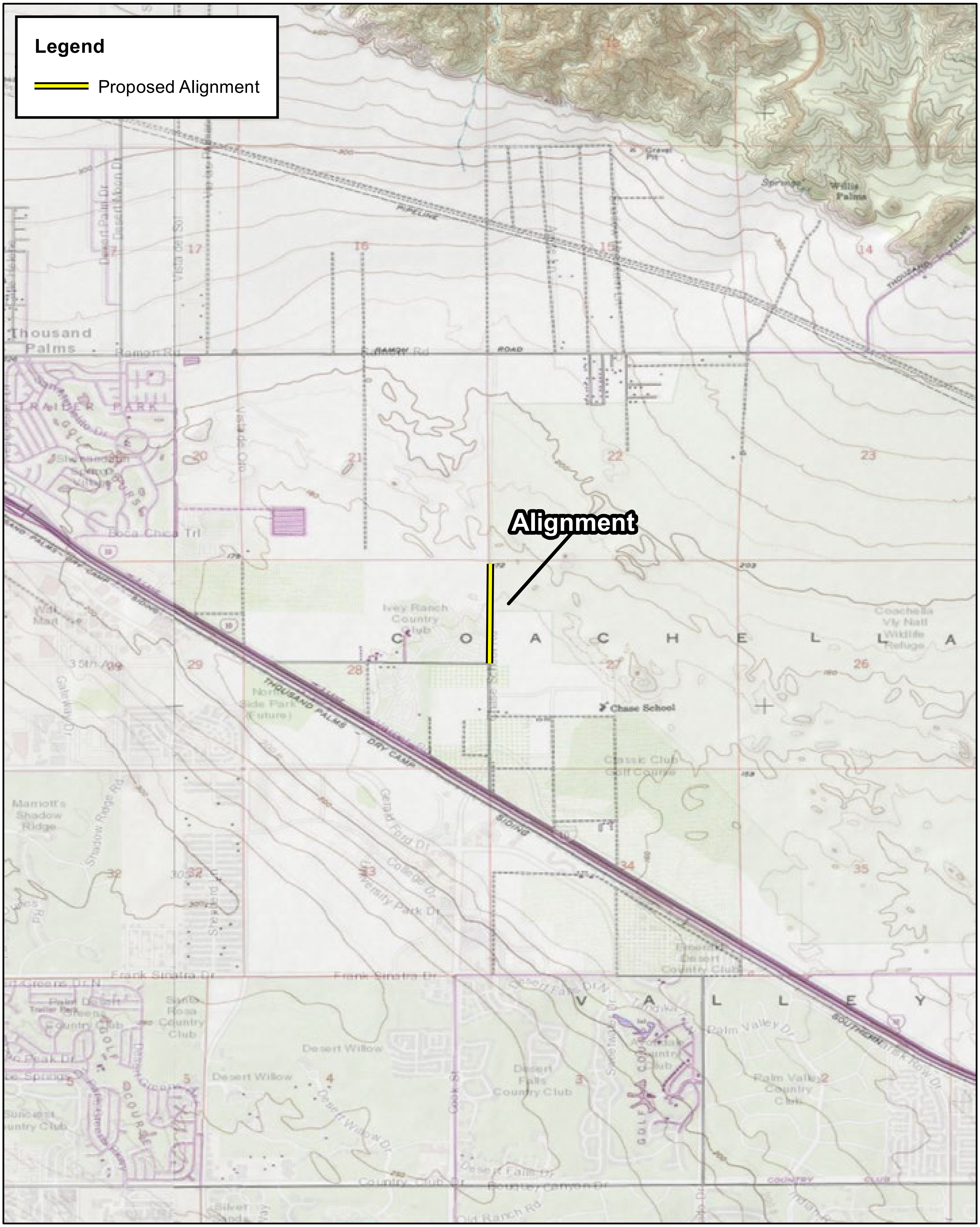
IMPERIAL IRRIGATION DISTRICT - DISTRIBUTION LINE EXTENSION
HABITAT ASSESSMENT AND CVMSHCP CONSISTENCY ANALYSIS

Regional Vicinity

0 1.25 2.5 5 Miles

Source: World Street Map, Riverside County

Exhibit 1



IMPERIAL IRRIGATION DISTRICT - DISTRIBUTION LINE EXTENSION
HABITAT ASSESSMENT AND CVMSHCP CONSISTENCY ANALYSIS

0 1,250 2,500 5,000
Feet

Site Vicinity

Source: USA Topographic Map, Riverside County

Exhibit 2

IMPERIAL IRRIGATION DISTRICT - DISTRIBUTION LINE EXTENSION
HABITAT ASSESSMENT AND CVMSHCP CONSISTENCY ANALYSIS

Project Site

Source: ESRI Aerial Imagery, Riverside County

Exhibit 3

Section 2 Methodology

A thorough literature review and records search was conducted to determine which special-status biological resources have the potential to occur on or within the general vicinity of the proposed distribution alignment. In addition, a general habitat assessment and field investigation of the proposed distribution alignment and immediate surrounding area was conducted and provided information about the existing conditions on the proposed distribution alignment and the potential for special-status biological resources to occur.

2.1 LITERATURE REVIEW

Prior to conducting the field investigation, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the proposed distribution alignment. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the proposed distribution alignment were determined through a query of the CDFW's CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

Literature detailing biological resources previously observed in the vicinity of the proposed distribution alignment and historical land uses were reviewed to understand the extent of disturbances to the habitats on-site. Standard field guides and texts on special-status and non-special-status biological resources were reviewed for habitat requirements, as well as the following resources:

- Google Earth Pro historic aerial imagery (1985-2019);
- CDFW 2012 Staff Report on Burrowing Owl Mitigation;
- Coachella Valley Multiple Species Habitat Conservation Plan:
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2]; and
- USFWS Critical Habitat designations for Threatened and Endangered Species.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the proposed distribution alignment. Additional recorded occurrences of these species found on or near the proposed distribution alignment were derived from database queries. The CNDDB ArcGIS database was used, in conjunction with ArcGIS software, to locate the nearest occurrence and determine the distance from the proposed distribution alignment.

[2] A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

2.2 FIELD INVESTIGATION

ELMT biologists Jacob H. Lloyd Davies inventoried and evaluated the extent and conditions of the plant communities found within the boundaries of the proposed distribution alignment and a 200-foot buffer on February 2, 2021. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials to support special-status plant and wildlife species.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

2.3 SOIL SERIES ASSESSMENT

Onsite and adjoining soils were researched prior to the field visit using the USDA NRCS Soil Survey for Riverside County, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes the proposed distribution alignment has undergone.

2.4 PLANT COMMUNITIES

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evens (2009), CDFW (2003), and Holland (1986), delineated on an aerial photograph, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community in acres.

2.5 PLANTS

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less-familiar plants were photographed in the field and identified in the laboratory using taxonomical guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

2.6 WILDLIFE

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of species during surveys included The Sibley Field Guide to the Birds of Western North America (Sibley 2003) for birds, A Field Guide to Western Reptiles and Amphibians (Stebbins 2003) for herpetofauna, and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

2.7 JURISDICTIONAL DRAINAGES AND WETLANDS

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect potential natural drainage features, ponded areas, or water bodies that may be considered riparian/riverine habitat and/or fall under the jurisdiction of the United State Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction.

Section 3 Existing Conditions

3.1 LOCAL CLIMATE

Riverside County features a somewhat cooler version of a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Relative to other areas in Southern California, winters are colder with frost and with chilly to cold morning temperatures common. Climatological data obtained for the City of Indio indicates the annual precipitation averages 3.44 inches per year. Almost all of the precipitation occurs in the months between December and March, with hardly any occurring between the months of April and November, with the exception of heavy monsoonal rains in the summer, with August accumulating the most rainfall (0.54 inches). The wettest month is usually February, with a monthly average total precipitation of 0.64 inches. The average yearly maximum and minimum temperatures for the City of Indio are 89 and 62 degrees Fahrenheit (F) respectively with July and August being the hottest months (monthly average 107° F) and December being the coldest (monthly average 44° F). The temperature during the site visit was in the high 50s °F with moderate to low cloud cover overhead.

3.2 TOPOGRAPHY AND SOILS

On-site surface elevation ranges from approximately 167 to 172 feet above mean sea level. The proposed distribution alignment slopes gently from north to south and is relatively flat with no areas of significant topographic relief. Based on the USDA NRCS Soil Survey, the proposed distribution alignment is underlain by the following soil units: Myoma fine sand (0 to 5 percent slopes) and Myoma fine sand (5 to 15 percent slopes). Soils within the proposed distribution alignment, within the road right-of-way have been compacted and disturbed by foot traffic, vehicle access, illegal dumping, and surrounding development.

3.3 SURROUNDING LAND USES

The proposed distribution alignment is located in an area that has undergone a conversion from natural habitats to a mosaic of residential, recreational, commercial, and industrial developments with heavily disturbed/isolated undeveloped parcels, and undisturbed native areas. The site is bordered by existing development to the east, south, and west, and undeveloped, vacant land to the northwest, north, and northeast. It should be noted that the Coachella Valley National Wildlife Refuge occurs immediate adjacent to the northern boundary of the site.

Section 4 Discussion

4.1 SITE CONDITIONS

The proposed distribution alignment supports both developed and undeveloped, vacant parcels.

4.2 VEGETATION

The proposed distribution alignment supports undeveloped land which is restricted to existing right-of-way. One plant community was observed on-site during the field investigation: creosote scrub. In addition, one (1) land cover type that would be classified as disturbed was observed. Please refer to Appendix A, *Site Photographs*, for representative photographs of the proposed distribution alignment. The plant community and land cover type are described in further detail below.

4.2.1 Creosote Scrub

The creosote scrub plant community is dominated by creosote (*Larrea tridentata*), hoary saltbush (*Atriplex canescens*), and cattle saltbush (*Atriplex polycarpa*) and is indicative of the surrounding natural plant communities that has experienced alterations in plant distribution and diversity due to disturbances from surrounding development. Additional plant species observed on-site during the field investigation include Mediterranean grass (*Schismus barbatus*) and Saharan mustard (*Brassica tournefortii*).

4.2.2 Disturbed

The disturbed areas on the proposed distribution alignment no longer comprise a native plant community. Disturbed areas observed onsite during the field investigation include dirt access roads associated with existing right-of-way and areas that have been subject to recreational off-highway vehicle activity and illegal dumping. These areas are typically devoid of vegetation with the exception of non-native annuals such as Mediterranean grass and Saharan mustard.

4.3 WILDLIFE

Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species observed, expected, or not expected to occur on-site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the survey was conducted. Wildlife observations were based on calls, songs, scat, tracks, burrows, and actual sightings of animals.

4.3.1 Fish

No fish or hydrogeomorphic features (e.g., creeks, ponds, lakes, reservoirs) that would provide suitable habitat for fish were observed on or within the vicinity of the proposed distribution alignment. Therefore, no fish are expected to occur and are presumed absent from the site.

4.3.2 Amphibians

No amphibians or hydrogeomorphic features that would provide suitable habitat for amphibian species were observed on or within the vicinity of the proposed distribution alignment. Therefore, no amphibians are expected to occur and are presumed absent from the site.

4.3.3 Reptiles

The proposed distribution alignment provides suitable habitat to support reptilian species adapted to routine human disturbance and desert environments. The only reptilian species observed during the field investigation was southern sagebrush lizard (*Sceloporus graciosus vandenburgianus*). Other common reptile species that have the potential to occur on the proposed distribution alignment include Great Basin fence lizard (*Sceloporus occidentalis longipes*), western side-blotched lizard (*Uta stansburiana elegans*), Coachella Valley fringe-toed lizard (*Uma inornata*), San Diego gopher snake (*Pituophis catenifer annectens*), Colorado desert sidewinder (*Crotalus cerastes laterorepens*), and coachwhip (*Coluber flagellum piceus*).

4.3.4 Birds

The proposed distribution alignment provides suitable foraging and nesting habitat for avian species adapted to routine human disturbance and desert environments. Avian species detected during the field investigation include Costa's hummingbird (*Calypte costae*), white-crowned sparrow (*Zonotrichia leucophrys*), common raven (*Corvus corax*), verdin (*Auriparus flaviceps*), Say's phoebe (*Sayornis saya*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), Eurasian collared dove (*Streptopelia decaocto*), and European starling (*Sturnus vulgaris*).

4.3.5 Mammals

The proposed distribution alignment provides suitable foraging and denning habitat for mammalian species adapted to routine human disturbance and desert environments. However, most mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammals detected and/or sign observed during the field investigation included desert cottontail (*Sylvilagus audubonii*), kangaroo rat (*Dipodomys* sp), and coyote (*Canis latrans*). Other common mammalian species that have the potential to occur on the proposed distribution alignment include California ground Squirrel (*Otospemophilus beecheyi*). No bat species are expected to roost on-site due to a lack of suitable roosting habitat (i.e., trees, crevices, abandoned structures) within and surrounding the proposed distribution alignment.

4.4 NESTING BIRDS

No active nests or nesting behaviors were observed during the field investigation. The creosote-saltbush scrub plant community provides suitable foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that have adapted to conditions in desert environments. A pre-construction nesting bird clearance survey shall be conducted within three (3) days prior to ground disturbance to ensure no nesting birds will be impacted from project implementation.

4.5 MIGRATORY CORRIDORS AND LINKAGES

Habitat linkages provide links between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages, but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The proposed distribution alignment occurs adjacent to the southeastern limits of the Coachella Valley National Wildlife Refuge, which supports the movement of local wildlife species through the undeveloped areas along the foothills of the Little San Bernardino Mountains. However, project activities are expected to be limited to existing right-of-way, adjacent to existing development, and are not expected to impact areas within the refuge. As a result, implementation of the proposed project will not disrupt or have any adverse effects on any migratory corridors or linkages in the surrounding area.

4.6 JURISDICTIONAL AREAS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into “waters of the United States” pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the Fish and Game Code, and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. A formal jurisdictional delineation of the proposed distribution alignment was prepared under separate cover.

No jurisdictional drainage and/or wetland features were observed within the proposed distribution alignment during the field survey. Therefore, development of the proposed distribution alignment will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

4.7 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDB was queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities in the Myoma USGS 7.5-minute quadrangle. A search of published records of these species was conducted within this quadrangle using the CDFW’s CNDDB Rarefind 5 online software and CNDDB Quickview Tool. The CNPS Inventory of Rare and Endangered Vascular Plants of California supplied information regarding the distribution and habitats of vascular plants in the vicinity of the proposed distribution alignment. The field investigation was used to assess the ability of the plant communities found on-site to provide suitable habitat for relevant special-status plant and wildlife species.

The literature search identified fifteen (15) special-status plant species, forty-two (42) special-status wildlife species, and one (1) special-status vegetation community as having potential to occur within the Myoma quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project boundaries based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity of the proposed distribution alignment are presented in Appendix B, *Potentially Occurring Special-Status Biological Resources*, and discussed below.

4.7.1 Special-Status Plants

Fifteen (15) special-status plant species have been recorded in the CNDDB and CNPS in the Myoma quadrangle (refer to Appendix B). No special-status plant species were observed on-site during the field investigation, which was conducted outside of the blooming period for the special-status species known to occur in the area. Based on habitat requirements for the identified special-status species, known species distributions, and existing site conditions, it was determined that the site has a low potential to support Borrego milk-vetch (*Astragalus lentiginosus* var. *borreganus*). Further, it was determined that no other special-status plant species have the potential to occur on-site and are presumed absent.

Borrego milk-vetch is not federally or State listed as endangered or threatened and has only been identified by CNPS as a watchlist species. No focused surveys recommended.

4.7.2 Special-Status Wildlife

Forty-two (42) special-status wildlife species have been reported in the Myoma quadrangle (refer to Appendix B). The only special-status animal species observed on-site during the field investigation was Costa's hummingbird (*Calypte costae*). Based on habitat requirements for the identified special-status wildlife species, known distributions, and the and routine disturbance, it was determined that the proposed distribution alignment has a high potential to support loggerhead shrike (*Lanius ludovicianus*) and black-tailed gnatcatcher (*Polioptila melanura*); a moderate potential to support Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), and Coachella Valley fringe-toed lizard (*Uma inornata*); and a low potential to support California horned lark (*Eremophila alpestris actia*), prairie falcon (*Falco mexicanus*), Coachella giant sand treader cricket (*Macrobaenetes valgum*), Palm Springs pocket mouse (*Perognathus longimembris brevinasus*), and Coachella Valley round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*). Further, it was determined that no other special-status wildlife species have the potential to occur on-site and are presumed absent.

Based on regional significance, listing status, coverage under the CVMSHCP, and onsite presence, Costa's hummingbird, loggerhead shrike, black-tailed gnatcatcher, Coachella Valley fringe-toed lizard, Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, and Coachella giant sand treader cricket are discussed below.

Costa's Hummingbird

Costa's hummingbird does not have any formal protection. It is a year-round resident in southern California and is found in desert and semi-desert, arid brushy foothills and chaparral. This species is breeds in the Sonoran and Mojave Deserts, and departs desert heat moving into chaparral, scrub, and woodland habitats. Departs desert heat moving into chaparral, scrub, and woodland habitats. Costa's hummingbird was observed on the proposed distribution alignment. Prior to the start of construction, a pre-construction nesting bird clearance survey shall be conducted to ensure no impacts to Costa's hummingbird occur.

Loggerhead Shrike

Loggerhead shrike is designated by the CDFW as a species of special concern. It is a year-round resident of southern California. This species is typically found in open country with short vegetation, including pastures, old orchards, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands. It utilizes somewhat prominent perching positions for hunting and eating. This species primarily nests in thorny shrubs and trees, but will nest in brush piles or other debris if no shrubs or trees are present. The general nesting season extends from the end of January through the end of July. Loggerhead shrike was determined to have a high potential to occur on the proposed distribution alignment. Prior to the start of construction, a pre-construction nesting bird clearance survey shall be conducted to ensure no impacts to loggerhead shrike occur.

Black-tailed Gnatcatcher

Black-tailed gnatcatcher is a CDFW Watch List Species that prefers nesting and foraging in densely lined arroyos and washes dominated by creosote bush and saltbush with scattered bursage, burrowed, ocotillo, saguaro, barrel cactus, prickly pear cactus and cholla. The species is a fairly common resident below 300 feet above mean sea level in desert wash habitat from Palm Springs and Joshua Tree National Monument south, and common along the Colorado River. Black-tailed gnatcatcher was determined to have a high potential to occur on the proposed distribution alignment. Prior to the start of construction, a pre-construction nesting bird clearance survey shall be conducted to ensure no impacts to black-tailed gnatcatcher occur.

Coachella Valley Fringe-toed Lizard

Coachella Valley fringe-toed lizard is designated by the USFWS as threatened under the Endangered Species Act (ESA) and by the CDFW as endangered under the California Endangered Species Act (CESA). Further, it is covered under the MSHCP. This species is only found in the Coachella Valley, and occurs on areas containing fine, windblown sands. They are rarely, if ever, found outside of this habitat and do not occur on stabilized sands. Vegetative cover is sparse to moderate and is usually dominated by creosote bush, indigo bush, honey mesquite, and four-winged saltbush (*Atriplex canescens*). This species is typically active from spring through fall, especially between April and October. Coachella Valley fringe-toed lizard was determined to have a moderate potential to occur on the proposed distribution alignment. Since Coachella Valley fringe-toed lizard is a covered species under the CVMSHP, no further surveys or additional mitigation measures will be required for impacts to this species, if present. Additionally, installation of the poles will have a small disturbance footprint and no Coachella Valley fringe-toed lizard are expected to be impacted.

Coachella Valley Round-tailed Ground Squirrel

Coachella Valley round-tailed ground squirrel is designated by the CDFW as a species of special concern. This species is typically found in scrub and wash habitats including mesquite- and creosote-dominated sand dunes, creosote bush scrub, creosote-palo verde scrub, and saltbush/alkali scrub, particularly in sandy floodplains. Ideal habitat seems to be areas where hummocks of sand accumulate at the base of large shrubs, and according to current data as described in the MSHCP, this species seems to particularly favor hummocks that form around mesquite. It is inactive and in its burrows from August until January. Coachella Valley round-tailed ground squirrel was determined to have a moderate potential to occur on the proposed distribution alignment. Since Coachella Valley round-tailed ground squirrel is a covered species under the CVMSHP, no further surveys or additional mitigation measures will be required for impacts to this species, if present. Additionally, installation of the poles will have a small disturbance footprint and no Coachella Valley round-tailed ground squirrel are expected to be impacted.

Palm Springs Pocket Mouse

The Palm Springs pocket mouse is designated by the CDFW as a species of special concern and is also covered under the CVMSHCP. It is endemic to the Coachella Valley, and while its current distribution is not well known, it was historically present from the San Gorgonio Pass to Joshua Tree National Park and south to Borrego Springs. This species generally occurs in creosote scrub, desert scrub, and grasslands with loose and/or sandy soils and sparse to moderate vegetative cover. Areas dominated by creosote bush, brittlebush (*Encelia farinosa*), burrobush, and ephedra (*Ephedra californica*). They are likely dormant generally between October and March but may emerge periodically to feed on seed caches. Palm Springs pocket mouse was determined to have a low potential to occur on the proposed distribution alignment. Since Palm Springs pocket mouse is a covered species under the CVMSHP, no further surveys or additional mitigation measures will be required for impacts to this species, if present.

Coachella Giant Sand Treader Cricket

The Coachella giant sand treader cricket has no state or federal designation but is covered under the CVMSHCP. Its known range extends through the western Coachella Valley to approximately two miles west of the City of Indio. This species is dependent on active dunes and ephemeral sand fields in the western Coachella Valley. It is strongly correlated with windblown habitats dominated by creosote bush, burrobush (*Ambrosia dumosa*), honey mesquite (*Prosopis glandulosa*), Mormon tea (*Ephedra* spp.), desert willow (*Chilopsis linearis*), and sandpaper bush (*Mortonia scabrella*). Stabilized sandy environments are avoided. Coachella giant sand treader cricket was determined to have a low potential to occur on the proposed distribution alignment. Since Coachella giant sand treader cricket is a covered species under the CVMSHP, no further surveys or additional mitigation measures will be required for impacts to this species, if present.

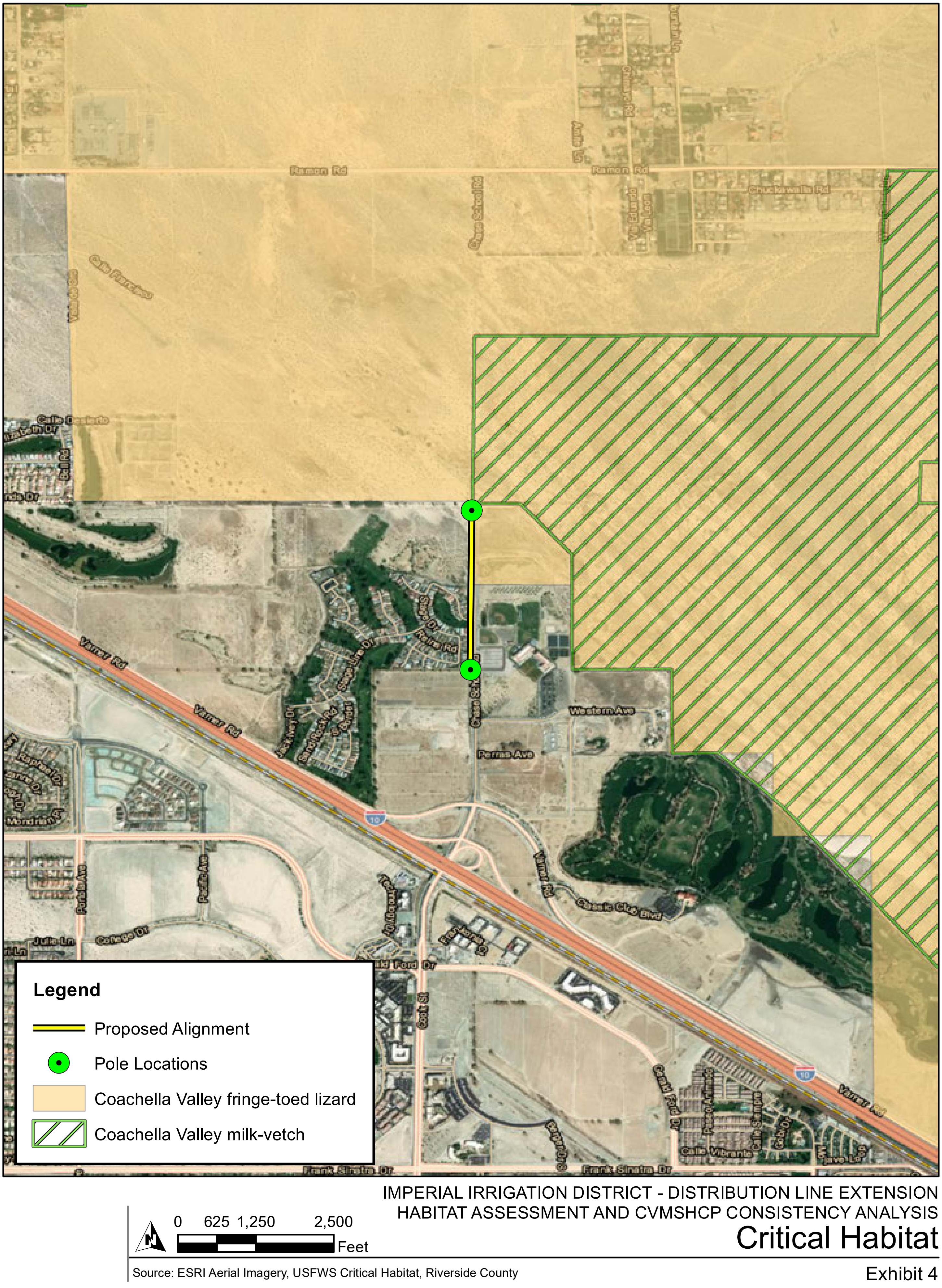
4.7.3 Special-Status Vegetation Community

The CNDDB lists one (1) special-status vegetation community as being identified within the Myoma USGS 7.5-minute quadrangle: Desert Fan Palm Oasis Woodland. This special-status vegetation community does not occur within the boundaries of the proposed distribution alignment.

4.8 CRITICAL HABITAT

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The proposed distribution alignment is not located within federally designated Critical Habitat (Exhibit 4, *Critical Habitat*). However, the proposed distribution alignment occurs adjacent to the Coachella Valley National Wildlife Refuge, which supports federally designated Critical Habitat for Coachella Valley fringe-toed lizard and Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*). Project activities are expected to be restricted to existing right-of-way and are not expected to impact the refuge. Therefore, implementation of the proposed project will not result in any impacts or adverse modification to designated critical habitat.



IMPERIAL IRRIGATION DISTRICT - DISTRIBUTION LINE EXTENSION
HABITAT ASSESSMENT AND CVMSHCP CONSISTENCY ANALYSIS

Critical Habitat

Source: ESRI Aerial Imagery, USFWS Critical Habitat, Riverside County

Exhibit 4

Section 5 Coachella Valley MSHCP Consistency Analyis

The proposed distribution alignment is not located within any of the CVMSHCP designated conservation areas; the closest conservation area is the Thousand Palms Conservation Area located immediately north of the proposed distribution line alignment (Exhibit 5, *CVMSHCP Conservation Areas*).

5.1 COVERED ACTIVITIES OUTSIDE CONSERVATION AREAS

The proposed project was reviewed to determine consistency with the CVMSHCP. Geographic Information System (GIS) software was utilized to map the proposed distribution alignment in relation to the CVMSHCP including conservation areas, corridors and linkages, and sand transport areas. The CVMSHCP requires that local permittees comply with various protective measures for covered species, communities, essential ecological processes, and biological corridors. In addition, certain projects may be subject to local development mitigation fees, a Joint Project Review Process, or other conservation or implementation measures.

The proposed project is not listed as a planned "Covered Activity" under the published CVMSHCP but is still considered to be a current Covered Activity pursuant to Section 7.1 of the CVMSHCP. According to Section 7.1 of the CVMSHCP, take authorization will be provided for certain activities that take place outside of Conservation Areas including "*Public facility construction, operations (not including groundwater withdrawal), and maintenance and safety activities by the Permittees for existing and future facilities, including both on and off site activities. Such facilities include, but are not limited to, publicly maintained roads and rights-of-way; materials pits; maintenance yards; flood control facilities; landfills, transfer stations, and other solid waste related facilities, including those for the processing of organic materials; public buildings; water development, production, storage, treatment, and transmission facilities; sewage treatment and transmission facilities; reclaimed water storage and transmission facilities; public parks; substations and electric transmission facilities; and other public utility facilities providing services essential to the health, safety, and welfare of the public.*"

As a Covered Activity located outside designated conservation areas, implementation of the proposed project is expected to be consistent with the applicable regulatory compliance measures described in Section 4.4 of the CVMSHCP (refer to Appendix C). Since the proposed project is considered a Covered Activity under Section 7.1 of the CVMSHCP, no measures are required, and the project is in compliance with the CVMSHCP.

5.2 CVMSHCP LAND USE ADJACENCY GUIDELINES

The purpose of Land Use Adjacency Guidelines (Section 4.5 of the CVMSHCP) is to avoid or minimize indirect effects from development adjacent to or within the Conservation Areas. Adjacent means sharing a common boundary with any parcel in a Conservation Area. Such indirect effects are commonly referred to as edge effects, and may include noise, lighting, drainage, intrusion of people, and the introduction of non-native plants and non-native predators such as dogs and cats. The proposed distribution alignment is located immediate adjacent to the Thousand Palms Conservation Area, and as such the following Land Use Adjacency Guidelines shall be considered and implemented where applicable.

Drainage

Proposed Development adjacent to or within a Conservation Area shall incorporate plans to ensure that the quantity and quality of runoff discharged to the adjacent Conservation Area is not altered in an adverse way when compared with existing conditions. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area.

The proposed project will not alter the quantity and quality of runoff discharged to the adjacent Conservation Area. The proposed scope of work will be limited to installing approximately 11 poles along 1,600 linear feet. No stormwater systems are proposed as part of this project. As a result, implementation of the proposed project will not release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area.

Toxics

Land uses proposed adjacent to or within a Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife and plant species, Habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the adjacent Conservation Area.

The proposed project would not generate toxic bioproducts or use toxic chemicals. Any spills of hazardous materials from project vehicles or equipment would be contained, cleaned up, and disposed of immediately.

Lighting

For proposed Development adjacent to or within a Conservation Area, lighting shall be shielded and directed toward the developed area. Landscape shielding or other appropriate methods shall be incorporated in project designs to minimize the effects of lighting adjacent to or within the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.

The proposed project would not require any additional lighting.

Noise

Proposed Development adjacent to or within a Conservation Area that generates noise in excess of 75 dBA Leq hourly shall incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of *noise on the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.*

The proposed scope of work will be limited to installing approximately 11 poles along 1,600 linear feet. As a result no barriers are needed to separate the proposed distribution alignment from the Thousand Palms Conservation Area. Construction-related noise will be mitigated to be consistent with the City's Noise Ordinances by limiting construction activities to daytime hours and requiring construction equipment to be tuned and equipped with mufflers. Under the CVMSHCP, wildlife within the CVMSHCP Conservation Area should not be subject to noise that would exceed 75dBA Leg.

Invasives

Invasive, non-native plant species shall not be incorporated in the landscape for land uses adjacent to or within a Conservation Area. Landscape treatments within or adjacent to a Conservation Area shall incorporate native plant materials to the maximum extent Feasible; recommended native species are listed in Table 4-112. The plants listed in Table 4-113 shall not be used within or adjacent to a Conservation Area. This list may be amended from time to time through a Minor Amendment with Wildlife Agency Concurrence.

The proposed project will not require any landscaping or planting.

Barriers

Land uses adjacent to or within a Conservation Area shall incorporate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in a Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls and/or signage.

The proposed project would not change any land uses in the area other than to install approximately 11 poles along 1,600 linear feet.

Grading/Land Development

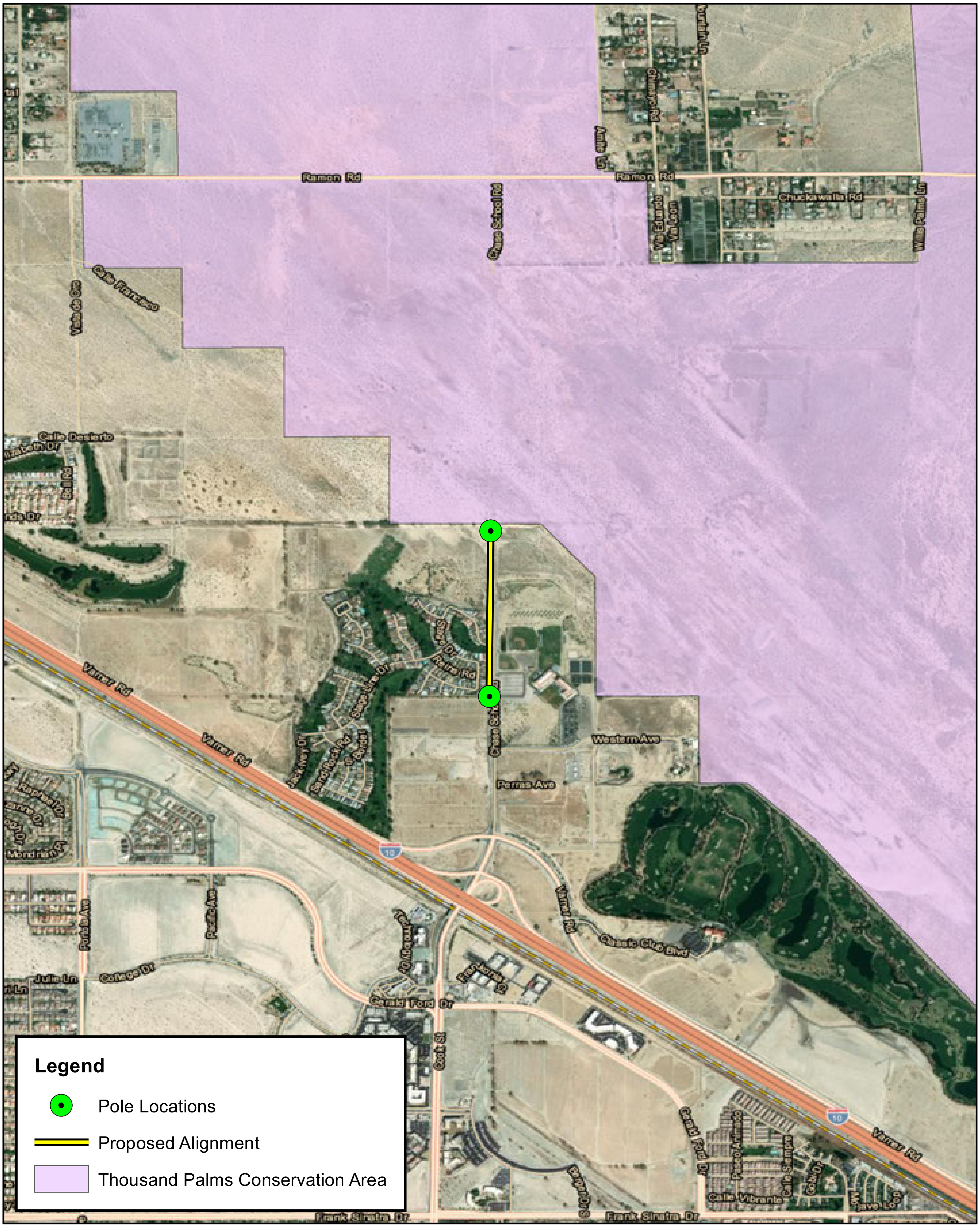
Manufactured slopes associated with site Development shall not extend into adjacent land in a Conservation Area.

The proposed project will not have any manufactures slopes.

5.3 CVMSHCP COVERED SPECIES

The CVMSHCP does not identify modeled habitat for any species as occurring within the proposed distribution alignment (refer to Appendix D, *CVMSHCP Covered Species*). Based on the results of the field investigation, the proposed distribution alignment consists of creosote scrub and disturbed land that has been subjected to a variety of anthropogenic disturbances. These disturbances have reduced, if not eliminated, the ability of the proposed distribution alignment to provide suitable habitat for

CVMSHCP Covered species. Due to the limited project footprint, no impacts to CVMSHCP Covered Species are expected to occur from project implementation.



IMPERIAL IRRIGATION DISTRICT - DISTRIBUTION LINE EXTENSION
HABITAT ASSESSMENT AND CVMSHCP CONSISTENCY ANALYSIS

CVMSHCP Conservation Areas

N 0 625 1,250 2,500 Feet

Source: ESRI Aerial Imagery, Riverside County

Exhibit 5

Section 6 Conclusion and Recommendations

The proposed distribution alignment consists of undeveloped land within the City of Palm Desert and is confined to existing right-of-way. The site occurs along and north of the northern terminus of Cook Street. The proposed distribution alignment supports undeveloped land which is restricted to existing right-of-way. One plant community was observed on-site during the field investigation: creosote scrub. In addition, one (1) land cover type that would be classified as disturbed was observed.

Special-Status Plant Species

No special-status plant species were observed during the field investigation. Based on habitat requirements for the identified special-status species, known species distributions, and existing site conditions, it was determined that the site has a low potential to support Borrego milk-vetch. Further, it was determined that no other special-status plant species have the potential to occur on-site and are presumed absent. Therefore, no impacts to special-status plant species are expected to occur due to project implementation.

Special-Status Wildlife Species

The only special-status animal species observed on-site during the field investigation was Costa's hummingbird. Based on habitat requirements for the identified special-status wildlife species, known distributions, and the and routine disturbance, it was determined that the proposed distribution alignment has a high potential to support loggerhead shrike and black-tailed gnatcatcher; a moderate potential to support Cooper's hawk, sharp-shinned hawk, and Coachella Valley fringe-toed lizard; and a low potential to support California horned lark, prairie falcon, Coachella giant sand treader cricket, Palm Springs pocket mouse, and Coachella Valley round-tailed ground squirrel. Further, it was determined that no other special-status wildlife species have the potential to occur on-site and are presumed absent. Therefore, no impacts to special-status wildlife species are expected to occur due to project implementation.

With implementation of a pre-construction nesting bird clearance survey, no impacts to loggerhead shrike, black-tailed gnatcatcher, Cooper's hawk, sharp-shinned hawk, California horned lark, prairie falcon are expected to occur.

Coachella Valley fringe-toed lizard, Coachella giant sand treader cricket, Palm Springs pocket mouse, and Coachella Valley round-tailed ground squirrel are covered species under the CVMSHCP and not further surveys will be required. Further, due to the limited scope of work, and small project footprint, if present, the adjacent habitats provide suitable refuge habitat for these species to temporarily move into. No impacts to these species are expected to occur.

Riparian Habitat and Special-Status Natural Communities

No jurisdictional drainage and/or wetland features were observed within the proposed distribution alignment during the field survey. Therefore, development of the proposed distribution alignment will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

No special-status natural communities were observed within the boundaries of the proposed distribution alignment. Therefore, no special-status natural communities will be impacted by project implementation.

Wildlife Corridors and Linkages

The proposed distribution alignment occurs adjacent to the southeastern limits of the Coachella Valley National Wildlife Refuge, which supports the movement of local wildlife species through the undeveloped areas along the foothills of the Little San Bernardino Mountains. However, project activities are expected to be limited to existing right-of-way, adjacent to existing development, and are not expected to impact areas within the refuge. As a result, implementation of the proposed project will not disrupt or have any adverse effects on any migratory corridors or linkages in the surrounding area.

Migratory Bird Treaty Act and CDFW Fish and Game Code Compliance

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.3, 3511, and 3513 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs). If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a 300-foot buffer around the active nest. For listed and raptor species, this buffer should be expanded to 500 feet. A biological monitor should be present to delineate the boundaries of the buffer area and monitor the active nest to ensure that nesting behavior is not adversely affected by construction activities. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

CVMSHCP Compliance

As a Covered Activity located outside designated conservation areas, construction of the proposed project is expected to implement the applicable regulatory complinace measures described in Section 4.4 of the CVMSHCP (refer to Appendix C). With implementation of these measures, and land use adjacney guidelines, the proposed project would be fully consistent with the biological goals and objectives of the CVMSHCP.

Section 7 References

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Appendix A Site Photographs

Photograph 1: From the northern boundary of the distribution alignment looking south.

Photograph 2: From the undeveloped portion of the northern boundary of the distribution alignment looking north.

Photograph 3: Existing pipeline within the existing road right of way in the undeveloped northern portion of the distribution alignment.

Photograph 4: From the northern terminus of Cook Street looking north along the alignment and existing dirt road.

Photograph 5: From the northern terminus of Cook Street looking south along the southern portion of the distribution line alignment.

Photograph 6: From the southern boundary of the alignment looking north.

Photograph 7: From the middle of the eastern boundary of the project site looking northwest.

Photograph 8: From the middle of the eastern boundary of the project site looking southwest.

Photograph 9: From the middle of the western boundary of the project site looking east.

Photograph 10: From the middle of the western boundary of the project site looking northeast.

Photograph 11: From the eastern boundary of the survey area looking northwest across the northeast portion. This area occurs within the Coachella Valley National Wildlife Refuge outside of the project footprint.

Photograph 12: From the middle of the western boundary of the survey area looking northeast.

Appendix B Potentially Occurring Special-Status Biological Resources

Table B-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
SPECIAL-STATUS WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	Fed: None CA: WL CVMHCP: Not Covered	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**Moderate.** Suitable foraging habitat is present on-site, but the site lacks suitable nesting opportunities. This species is adapted to urban environments and occurs commonly.
Accipiter striatus sharp-shinned hawk	Fed: None CA: WL CVMHCP: Not Covered	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	**Moderate.** Suitable foraging habitat is present on-site, but the site lacks suitable nesting opportunities. This species is adapted to urban environments and occurs commonly.
Ardea herodias great blue heron	Fed: None CA: None CVMHCP: Not	Fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains about foothills.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC CVMHCP:	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage such as chaparral, woodland, and riparian areas.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Athene cunicularia burrowing owl	Fed: None CA: SSC CVMHCP: Covered	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	**Presumed Absent**. The project site provides line-of-sight opportunities favored by this species. No suitable burrows (>4 inches in diameter) were observed onsite and no sign of owls was observed.
Botaurus lentiginosus American bittern	Fed: None CA: None CVMHCP: Not Covered	Often breed in shallow wetlands dominated by tall emergent vegetation, including cattail marshes, wet meadows, bogs, and shrubby marshes and occasionally hayfields.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Calypte costae Costa's hummingbird	Fed: None CA: None CVMHCP: Not Covered	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	Yes	**Present**. This species was observed onsite during the field investigation. The project site provides suitable habitat for this species.
Chaetodipus fallax pallidus pallid San Diego pocket mouse	Fed: None CA: SSC CVMHCP: Not Covered	Common resident of sandy herbaceous areas, usually in association with rocks or course gravel in southwestern California. Occurs mainly in arid coastal and desert border areas. Habitats include coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Chaetura vauxi Vaux's swift	Fed: None CA: SSC CVMHCP: Not Covered	Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs.	No	**Presumed absent**. This species is not usually found over open desert habitats. Local records are mostly in urban or forested areas.
Circus hudsonius northern harrier	Fed: None CA: SSC CVMHCP: Not Covered	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Contopus cooperi olive-sided flycatcher	Fed: None CA: SSC CVMHCP: Not Covered	Uncommon to common, summer resident in a wide variety of forest and woodland habitats below 9,000 ft throughout California exclusive of the deserts, the Central Valley, and other lowland valleys and basins. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: SSC CVMHCP: Not Covered	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
Cyprinodon macularius desert pupfish	Fed: **END** CA: **END** CVMHCP: Covered	In California, this species historically occurred in several springs, seeps and slow-moving streams in the Salton Sink Basin, as well as in backwaters and sloughs along the lower Colorado River. Now relegated to remnants of their former habitats, which generally are too harsh for most introduced species to exist.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Dipodomys merriami collinus earthquake Merriam's kangaroo rat	Fed: None CA: None CVMHCP: Not Covered	Typically found in Riversidean alluvial fan sage scrub habitat, but may also be found in Riversidean sage scrub, chaparral and grassland vegetation in adjacent to upland areas. Often associated with sandy-loam soils that are common throughout the designated core drainages.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Empidonax traillii brewsteri little willow flycatcher	Fed: None CA: **END** CVMHCP: Not Covered	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats (2,000 to 8,000 feet) in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Empidonax traillii extimus southwestern willow flycatcher	Fed: **END** CA: **END** CVMHCP: Covered	Occurs in riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys, canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Eremophila alpestris actia California horned lark	Fed: None CA: WL CVMHCP: Not Covered	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types. Flocks in groups.	No	**Low.** Suitable foraging habitat is present on-site, but the site lacks suitable nesting opportunities.
Euphydryas editha quino quino checkerspot butterfly	Fed: **END** CA: None CVMHCP: Not Covered	Characterized by patchy shrub or small tree landscapes with openings of several meters between large plants, or a landscape of open swales alternating with dense patches of shrubs. Frequently perch on vegetation or other substrates to mate or bask and require open areas to facilitate movement. Host plant needed for egg deposits include *Plantago erecta* (erect or dwarf plantain), *Plantago patagonica* (Patagonian plantain), and *Anterrhinum coulterianum* (white snapdragon).	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Falco mexicanus prairie falcon	Fed: None CA: WL CVMHCP: Not Covered	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	No	**Low.** Suitable foraging habitat is present on-site, but the site lacks suitable nesting opportunities.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Gopherus agassizii desert tortoise	Fed: **THR** CA: **THR** CVMHCP: Covered	Widely distributed in the Mojave, Sonoran, and Colorado deserts from below sea level to 7,220 feet. Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.		**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Habropoda pallida white faced bee	Fed: None CA: None CVMHCP: Not Covered	Builds nests in clay-rich sandy slopes along water courses in the Mojave Desert. In California, it occurs from Into County south to Imperial County and east to the Nevada and Arizona borders. Prefers areas with a high density of creosote and dune-restricted endemic plants.		**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Icteria virens yellow-breasted chat	Fed: None CA: SSC CVMHCP: Covered	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC CVMHCP: Not Covered	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**High**. Suitable foraging and nesting habitat are found within the project site and the surrounding area.
Lasiurus xanthinus western yellow bat	Fed: None CA: SSC CVMHCP: Covered	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Macrobaenetes valgum Coachella giant sand treader cricket	Fed: None CA: None CVMHCP: Covered	Nocturnal and moisture sensitive insects. Emergence occurs with winter rains and appear at maximum densities in January-February. Can be detected via their characteristic delta-shaped burrow excavations.	No	**Low**. Marginal habitat is present within the project site. Sandy soils within the site have been compacted by routine disturbances.
Neotoma lepida intermedia San Diego desert woodrat	Fed: None CA: SSC CVMHCP: Not Covered	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Oliarces clara cheeseweed owlfly	Fed: None CA: None CVMHCP: Not Covered	Occur on or near bajadas, adults aggregate at local high topographic features to mate.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
Passerculus sandwichensis alaudinus Bryant's savannah sparrow	Fed: None CA: SSC CVMHCP: Not Covered	Occupies tidally influenced habitats, adjacent ruderal areas, moist grasslands within and just above the fog belt, and infrequently drier grasslands.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Passerculus sandwichensis rostratus large-billed savannah sparrow	Fed: None CA: SSC CVMHCP: Not Covered	Non-breeding visitor occurring primarily from late August to early March along the southern coast and from late July to mid-February at the Salton Sea. Breeding habitat is limited to open, low salt marsh vegetation, including grasses, pickleweed, and iodine bush.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Perognathus longimembris bangsi Palm Springs pocket mouse	Fed: None CA: SSC CVMHCP: Covered	Inhabits areas having flat to gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils on slopes ranging from 0% to approximately 15%. Remaining habitat in the Coachella Valley and environs is about 142,000 acres.	No	**Low.** Marginal habitat is present within the project site; however, more suitable habitat is present in the adjacent refuge.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: None CA: SSC CVMHCP: Not Covered	Resides in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Phrynosoma mcallii flat-tailed horned lizard	Fed: None CA: SSC CVMHCP: Covered	Typical habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. Most common in areas with high density of harvester ants and fine windblown sand, but rarely occurs on dunes.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Piranga rubra summer tanager	Fed: None CA: SSC CVMHCP: Covered	Breed in gaps and edges of open deciduous or pine-oak forests across the southern and mid-Atlantic U.S. Uncommon (formerly common) summer resident and breeder in desert riparian habitat along lower Colorado River. Breeds in mature, desert riparian habitat dominated by cottonwoods and willows.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Polioptila melanura black-tailed gnatcatcher	Fed: None CA: WL CVMHCP: Not Covered	In Mojave, Great Basin, Colorado and Sonoran desert communities, prefers nesting and foraging in densely lined arroyos and washes dominated by creosote bush and salt bush with scattered bursage, burrowed, ocotillo, saguaro, barrel cactus, nipple cactus, and prickly pear and cholla.	No	**High**. The project site provides suitable habitat for this species.
Selasphorus rufus rufous hummingbird	Fed: None CA: None CVMHCP: Not Covered	During breeding, they are found in forests, on seed-tree harvest units, riparian shrub, and spruce-fir habitats. During the winter, it migrates to lowland stream bottoms, foothill brush land, seacoast and high mountain meadows.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
Setophaga petechia yellow warbler	Fed: None CA: SSC CVMHCP: Covered	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None CVMHCP: Not Covered	Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and, in southern California, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Nearby herbaceous habitats often used for feeding. Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Spizella breweri Brewer's sparrow	Fed: None CA: None CVMHCP: Not Covered	Habitats include sagebrush and brushy plains.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Toxostoma crissale Crissal thrasher	Fed: None CA: SSC CVMHCP: Covered	Year round resident in California. Occupies a relatively large variety of desert riparian and scrub habitats from below sea level to over 6,000 feet. The common factor, regardless of habitat type and species of shrub, is dense, low scrubby vegetation. Primarily occupies riparian scrub or woodland at lower elevations.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Toxostoma lecontei Le Conte's thrasher	Fed: None CA: SSC CVMHCP: Covered	An uncommon to rare, local resident in southern California deserts from southern Mono Co. south to the Mexican border, and in western and southern San Joaquin Valley. Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Uma inornata Coachella Valley fringe-toed lizard	Fed: **THR** CA: **END** CVMHCP: Covered	Sparsely-vegetated arid areas with fine wind-blown sand, including dunes, washes, and flats with sandy hummocks formed around the bases of vegetation. Needs fine, loose sand for burrowing.	No	**Moderate**. Marginal habitat is present within the project site; however, more suitable habitat is present in the adjacent refuge. This species is known to occur in the adjacent refuge.

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
Xerospermophilus tereticaudus chlorus Coachella Valley round-tailed ground squirrel	Fed: None CA: SSC CVMHCP: Covered	Inhabits sandy arid regions of Lower Sonoran Life Zone. Its scrub and wash habitats include mesquite and creosote dominated sand dunes, creosote bush scrub, creosote palo verde and saltbush/alkali scrub.	No	**Low.** Marginal habitat is present within the project site; however, more suitable habitat is present in the adjacent refuge.
SPECIAL-STATUS PLANT SPECIES				
Abronia villosa* var. *aurita chaparral sand-verbena	Fed: None CA: None CNPS: 1B.1 CVMSHCP: Not Covered	Found on the coastal side of the southern California mountains in chaparral and coastal sage scrub plant communities in areas of full sun and sandy soils. Found at elevations ranging from 262 to 5,249 feet. Blooming period is from January to September.	No	**Presumed absent**. No suitable habitat is present.
Astragalus lentiginosus* var. *borreganus Borrego milk-vetch	Fed: None CA: None CNPS: 4.3 CVMSHCP: Not Covered	Grows in sandy soils within Mojavean desert scrub and Sonoran desert scrub. Found at elevations ranging from 98 to 1,050 feet in elevation. Blooming period is from February to May.	No	**Low**. The project site provides marginal habitat.
Astragalus lentiginosus* var. *coachellae Coachella Valley milk-vetch	Fed: **END** CA: None CNPS: 1B.2 CVMSHCP: Covered	Preferred habitat includes desert dunes and sandy Sonoran desert scrub. Found at elevations ranging from 131 to 2,149 feet in elevation. Blooming period is from February to May.	Yes	**Presumed absent**. No suitable habitat is present.
Astragalus tricarinatus triple-ribbed milk-vetch	Fed: **END** CA: None CNPS: 1B.2 CVMSHCP: Covered	Found in sandy or gravelly soils within Joshua tree woodland and Sonoran desert scrub habitats. Found at elevations ranging from 1,476 to 3,904 feet. Blooming period is from February to May.	No	**Presumed absent**. The project site is outside of the typical known elevation for this species.
Eremothera boothii ssp. boothii Booth's evening primrose	Fed: None CA: None CNPS: 2B.3 CVMSHCP: Not Covered	Joshua tree woodland, pinyon and juniper woodland. Blooming period is from June to August.	No	**Presumed absent**. No suitable habitat is present.
Eschscholzia androuxii Joshua Tree poppy	Fed: None CA: None CNPS: 4.3 CVMSHCP: Not Covered	Grows in desert washes, flats, and slopes; sandy, gravelly and/or rocky within Joshua tree woodland and Mojavean desert scrub habitats. Found at elevations ranging from 1,919 to 5,528 feet. Blooming period is from February to June.	No	**Presumed absent**. The project site is outside of the typical known elevation for this species.
Euphorbia abramsiana Abram's spurge	Fed: None CA: None CNPS: 2B.2 CVMSHCP: Not Covered	Found on sandy soils in Mojavean desert scrub and Sonoran Desert scrub. Blooming period is from September to November.	No	**Presumed absent**. No suitable habitat is present.
Euphorbia arizonica Arizona spurge	Fed: None CA: None CNPS: 2B.3 CVMSHCP: Not Covered	Preferred habitat includes sandy, Sonoran desert scrub habitat. Found at elevations ranging from 164 to 984 feet. Blooming period is from March to April.	No	**Presumed absent**. No suitable habitat is present.

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
Euphorbia platysperma flat-seeded spurge	Fed: None CA: None CNPS: 1B.2 CVMSHCP: Not Covered	Occurs within desert scrub and sandy Sonoran desert scrub habitats. Found at elevations ranging from 213 to 328 feet. Blooming period is from February to September.	No	**Presumed absent**. No suitable habitat is present.
Johnstonella costata ribbed cryptantha	Fed: None CA: None CNPS: 4.3 CVMSHCP: Not Covered	Preferred habitat includes desert dunes, Mojavean desert scrub, and Sonoran desert scrub habitats on sandy soil. Found at elevations ranging from 197 to 1,640 feet. Blooming period is from February to May.	No	**Presumed absent**. No suitable habitat is present.
Juncus acutus ssp. leopoldii southwestern spiny rush	Fed: None CA: None CNPS: 4.2 CVMSHCP: Not Covered	Found in coastal dunes (mesic), meadows and seeps (alkaline), and marshes and swamps (coastal salt). Found at elevations ranging from 0 to 3,115 feet. Blooming period is from May to June.	No	**Presumed absent**. No suitable habitat is present.
Juncus cooperi Cooper's rush	Fed: None CA: None CNPS: 4.3 CVMSHCP: Not Covered	Found in meadows and seeps (mesic, alkaline, or saline). Found at elevations ranging from -250 to 2,855 feet. Blooming period is from April to May.	No	**Presumed absent**. No suitable habitat is present.
Lycium torreyi Torrey's box-thron	Fed: None CA: None CNPS: 4.2 CVMSHCP: Not Covered	Found in sandy, rocky, washes, streambanks and desert valleys in association with Mojavean and Sonoran Desert scrub habitats. Found at elevations ranging from 130 to 3,575 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present.
Petalonyx linearis narrow-leaf sandpaper plant	Fed: None CA: None CNPS: 2B.3 CVMSHCP: Not Covered	Found in sandy or rocky canyons in association with Mojavean or Sonoran Desert scrub habitats. Found at elevations ranging from 260 to 2,855 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present.
Xylorhiza cognata Mecca-aster	Fed: None CA: None CNPS: 1B.2 CVMSHCP: Covered	Occurs in Sonoran desert scrub habitat. Found at elevations ranging from 66 to 1,312 feet. Blooming period is from January to June.	No	**Presumed absent**. No suitable habitat is present.
CDFW SENSITIVE HABITATS				
Desert Fan Palm Oasis Woodland	CDFW Sensitive Habitat	Rare plant community that is one of the most unusual biological resources located within the Coachella Valley. Found within canyons and along the San Andreas Fault Zone, where water occurs naturally. Generally characterized by open to dense groves of native desert fan palms, which are the most massive native palm in North America, growing more than 66 feet.	No	**Absent**.

U.S. Fish and Wildlife Service (Fed) - Federal
END – Federal Endangered
THR – Federal Threatened

California Department of Fish and Wildlife (CA) - California
END – California Endangered
THR – California Threatened
FP – California Fully Protected

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere

Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

CSC – California Species of Special Concern	3 More Information Needed
WL – California Watch List	4 Plants of Limited Distribution – A Watch List

Appendix C Section 4.4 of the CVMSHCP

4.4 Required Avoidance, Minimization, and Mitigation Measures

This section describes certain avoidance, minimization, and mitigation requirements for Covered Activities within the Conservation Area, in addition to Conservation Area specific measures described in the Conservation Area subsections in Section 4.3. The measures described in this section do not apply to single-family homes, emergency response activities, and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot. To assist Permittees with implementation of these measures, CVCC will maintain maps of modeled Habitat and a natural communities map and will provide them to each of the Permittees. CVCC will also maintain a list of Acceptable Biologists who may be used to conduct surveys for specified Covered Species identified in this section. Any Permittee may submit the names of biologists for inclusion in the initial list of Acceptable Biologists. The list shall be updated at least annually. CVCC will develop procedures for individual biologists to submit their name for inclusion on the list. Individuals conducting survey activities for listed endangered or threatened species or species for which a state or federal protocol exists must have the appropriate permit (i.e., in accordance with the federal Endangered Species Act, Section 10(a)(1)(A), or state Endangered Species Act, California Fish and Game Code, Section 2081(a)) to conduct such surveys. Annually, or whenever the list is revised, CVCC shall submit the list to the Wildlife Agencies for review. The Wildlife Agencies shall have thirty (30) days to provide input on the qualifications of any biologists on the list. If the Wildlife Agencies have not responded within thirty days (30) of receipt of the list from CVCC, the biologists on the list shall be deemed acceptable.

In the event that a survey of a parcel is required pursuant to the MSHCP, it will be conducted by an Acceptable Biologist. The survey shall be conducted in the appropriate season, in accordance with established accepted protocols if they exist. Within one (1) year of Permit issuance, the Wildlife Agencies and the MPA, in consultation with CVCC, shall develop survey protocols for those species for which a protocol is required. CVCC will maintain a list of accepted survey protocols. For those species for which protocols do not exist at the time surveys are needed, the Acceptable Biologist shall use a survey protocol generally accepted by biologists familiar with the species. Survey results shall be documented in both mapped and text form and shall be presented for review by the appropriate Permittee and CVCC. Wildlife Agencies' concurrence or acceptance of the surveys and/or the results contained therein is not required by the MSHCP.

Biological Corridors. Specific roads in Conservation Areas, where culverts or undercrossings are required to maintain Biological Corridors, are delineated in the Section 4.3 subsections on individual Conservation Areas.

Burrowing Owl. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot, or to O&M of Covered Activities other than levees, berms, dikes, and similar features that are known to contain burrowing owl burrows. O&M of roads is not subject to this requirement. For other projects that are subject to CEQA, the Permittees will require burrowing owl surveys in the Conservation Areas using an accepted protocol (as determined by the CVCC in coordination with the Permittees and the Wildlife Agencies). Prior to Development, the construction area and adjacent areas within 500 feet of the Development site, or to the edge of the property if less than 500 feet, will be surveyed by an Acceptable Biologist for burrows that could be used by burrowing owl. If a burrow is located, the biologist will determine if an owl is present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot buffer during the non-breeding season and a 250-foot buffer during the breeding season, or a buffer to the edge of the property boundary if less than 500 feet, will be established around the burrow. The buffer will be staked and flagged. No Development or O&M activities will be permitted within the buffer until the young are no longer dependent on the burrow.

If the burrow is unoccupied, the burrow will be made inaccessible to owls, and the Covered Activity may proceed. If either a nesting or escape burrow is occupied, owls shall be relocated pursuant to accepted Wildlife Agency protocols. A burrow is assumed occupied if records indicate that, based on surveys conducted following protocol, at least one burrowing owl has been observed occupying a burrow on site during the past three years. If there are no records for the site, surveys must be conducted to determine, prior to construction, if burrowing owls are present. Determination of the appropriate method of relocation, such as eviction/passive relocation or active relocation, shall be based on the specific site conditions (e.g., distance to nearest suitable habitat and presence of burrows within that habitat) in coordination with the Wildlife Agencies. Active relocation and eviction/passive relocation require the preservation and maintenance of suitable burrowing owl habitat determined through coordination with the Wildlife Agencies.

Within one (1) year of Permit issuance, CVCC will cooperate with County Flood Control, CVWD and IID to conduct an inventory of levees, berms, dikes, and similar features in the Plan Area maintained by those Permittees. Burrowing owl burrow locations will be mapped and each of these Permittees will incorporate the information into its O&M practices to avoid impacts to the burrowing owl to the maximum extent Feasible. CVCC in cooperation with County Flood Control, CVWD, and IID will prepare a manual for maintenance staff, educating them about the burrowing owl and appropriate actions to take when owls are encountered to avoid impacts to the maximum extent Feasible. The manual will be submitted to the Wildlife Agencies for review and comment within two (2) years of Permit issuance. In conjunction with the Monitoring Program, the maps of the burrowing owl locations along the above-described levees, berms, dikes, and similar features will be periodically updated.

Covered Riparian Bird Species. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot. Riparian Habitat here refers to the following natural communities: southern arroyo willow riparian forest, Sonoran cottonwood-willow riparian forest, desert fan palm oasis woodland, and southern sycamore-alder riparian woodland in the Cabazon, Stubbe and Cottonwood Canyons, Whitewater Canyon, Upper Mission Creek/Big Morongo Canyon, Thousand Palms, Indio Hills Palms, Joshua Tree National Park, Mecca Hills and Orocopia Mountains, Dos Palmas, Coachella Valley Stormwater Channel and Delta, and Santa Rosa and San Jacinto Mountains Conservation Areas. Covered Activities, including O&M of facilities and construction of permitted new projects, in riparian Habitat will be conducted to the maximum extent Feasible outside of the March 15 – September 15 nesting season for least Bell's vireo, and the May 1 – September 15 nesting season for southwestern willow flycatcher, summer tanager, yellow warbler, and yellow-breasted chat. If Covered Activities must occur during the nesting season, surveys shall be conducted to determine if any active nests are present. If active nests are identified, the Covered Activity shall not be conducted within 200 feet of an active nest. If surveys conducted during the nesting season document that Covered nesting riparian bird Species are not present, the Covered Activity may proceed.

Crissal Thrasher. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot, or to O&M of Covered Activities. In modeled crissal thrasher Habitat in the Willow Hole, Thousand Palms, Indio Hills Palms, East Indio Hills, Dos Palmas, and Coachella Valley Stormwater Channel and Delta Conservation Areas, surveys will be conducted by an Acceptable Biologist prior to the start of construction activities during the nesting season, January 15 – June 15, to determine if active nest sites for this species occur on the construction site and/or within 500 feet of the construction site, or to the edge of the property boundary if less than 500 feet. If nesting crissal thrashers are found, a 500-foot buffer, or a buffer to the edge of the property boundary if less than 500 feet, will be established around the nest site. The buffer will be staked and flagged. No construction activities will be permitted within the buffer during the breeding season of January 15 – June 15 or until the young have fledged.

Desert tortoise. This measure does not apply to single-family residences and any non-commercial accessory uses and structures, including but not limited to second units on an existing legal lot, or to O&M of Covered Activities for Permittee infrastructure facilities. Within Conservation Areas, the Permittees will require surveys for desert tortoise for Development in modeled desert tortoise Habitat. Prior to Development, an Acceptable Biologist will conduct a presence/absence survey of the Development area and adjacent areas within 200 feet of the Development area, or to the property boundary if less than 200 feet and permission from the adjacent landowner cannot be obtained, for fresh sign of desert tortoise, including live tortoises, tortoise remains, burrows, tracks, scat, or egg shells. The presence/absence survey must be conducted during the window between February 15 and October 31. Presence/absence surveys require 100% coverage of the survey area. If no sign is found, a clearance survey is not required. A presence/absence survey is valid for 90 days or indefinitely if tortoise-proof fencing is installed around the Development site.

If fresh sign is located, the Development area must be fenced with tortoise-proof fencing and a clearance survey conducted during the clearance window. Desert tortoise clearance surveys shall be conducted during the clearance window from February 15 to

June 15 and September 1 to October 31 or in accordance with the most recent Wildlife Agency protocols. Clearance surveys must cover 100% of the Development area. A clearance survey must be conducted during different tortoise activity periods (morning and afternoon). All tortoises encountered will be moved from the Development site to a specified location. Prior to issuance of the Permits, CVCC will either use the *Permit Statement Pertaining to High Temperatures for Handling Desert Tortoises* and *Guidelines for Handling Desert Tortoises During Construction Projects*, revised July 1999, or develop a similar protocol for relocation and monitoring of desert tortoise, to be reviewed and approved by the Wildlife Agencies. Thereafter, the protocol will be revised as needed based on the results of monitoring and other information that becomes available.

For O&M activities in the Conservation Areas, the Permittees shall ensure that personnel conducting such activities are instructed to be alert for the presence of desert tortoise. If a tortoise is spotted, activities adjacent to the tortoise's location will be halted and the tortoise will be allowed to move away from the activity area. If the tortoise is not moving, it will be relocated by an Acceptable Biologist to nearby suitable Habitat and placed in the shade of a shrub. To the maximum extent Feasible, O&M activities will avoid the period from February 15 and October 31.

Utility development protocols have been developed to avoid or minimize potential adverse impacts to the desert tortoise in the Conservation Areas from utility and road right-of-way projects, such as the installation and maintenance of water, sewer, and electric lines and roadway maintenance. The objectives of these protocols are to provide reliable and consistent direction on utility development within the Conservation Areas. Two utility development protocols, inactive and active season, provide specific direction on site preparation and construction phases of utility projects in the Conservation Areas. The protocols include steps to be followed during the desert tortoise active and/or inactive season. The inactive season protocol must be used for utility maintenance or development within the November 1 to February 14 time frame; the active season protocol must be used for utility maintenance or development within the February 15 to October 31 time frame. Deviations from these time frames must be presented to the RMOC.

Inactive Season Protocol. This protocol is applicable to pre-construction and construction phases of utility Covered Activity projects occurring between November 1 and February 14. These protocols apply only to the site preparation and construction phases of projects. The project proponent must follow the eight pre-construction protocol requirements listed below.

1. A person from the entity contracting the construction shall act as the contact person with the representative of the appropriate RMUC. He/she will be responsible for overseeing compliance with the protective stipulations as stated in this protocol.
2. Prior to any construction activity within the Conservation Areas, the contact person will meet with the representative of the appropriate RMUC to review the

plans for the project. The representative of the appropriate RMUC will review alignment, pole spacing, clearing limits, burrow locations, and other specific project plans which have the potential to affect the desert tortoise. He or she may recommend modifications to the contact person to further avoid or minimize potential impacts to desert tortoise.

3. The construction area shall be clearly fenced, marked, or flagged at the outer boundaries to define the limits of construction activities. The construction right-of-way shall normally not exceed 50 feet in width for standard pipeline corridors, access roads and transmission corridors, and shall be minimized to the maximum extent Feasible. Existing access roads shall be used when available, and rights-of-way for new and existing access roads shall not exceed 20 feet in width unless topographic obstacles require greater road width. Other construction areas including well sites, storage tank sites, substation sites, turnarounds, and laydown/staging sites which require larger areas will be determined in the pre-construction phase. All construction workers shall be instructed that their activities shall be confined to locations within the fenced, flagged, or marked areas.

4. An Acceptable Biologist shall conduct pre-construction clearance surveys of all areas potentially disturbed by the proposed project. Any winter burrows discovered in the Conservation Areas during the pre-construction survey shall be avoided or mitigated. The survey shall be submitted to the representative of the appropriate RMUC as part of plan review.

5. All site mitigation criteria shall be determined in the pre-construction phase, including but not limited to seeding, barrier fences, leveling, and laydown/staging areas, and will be reviewed by the representative of the appropriate RMUC prior to implementation.

6. A worker education program shall be implemented prior to the onset of each construction project. All construction employees shall be required to read an educational brochure prepared by the representative of the appropriate RMUC and/or the RMOC and attend a tortoise education class prior to the onset of construction or site entry. The class will describe the sensitive species which may be found in the area, the purpose of the MSHCP Reserve System, and the appropriate measures to take upon discovery of a sensitive species. It will also cover construction techniques to minimize potential adverse impacts.

7. All pre-construction activities which could Take tortoises in any manner (e.g., driving off an established road, clearing vegetation, etc.) shall occur under the supervision of an Acceptable Biologist.

8. If there are unresolvable conflicts between the representative of the appropriate RMUC and the contact person, then the matter will be arbitrated by the RMOC and, if necessary, by CVCC.

The following terms are established to protect the desert tortoise during utility-related construction activities in the Conservation Areas and are to be conducted by an Acceptable Biologist.

- An Acceptable Biologist shall oversee construction activities to ensure compliance with the protective stipulations for the desert tortoise.
- Desert tortoises found above ground inside the project area during construction shall be moved by an Acceptable Biologist out of harm's way and placed in a winter den (at a distance no greater than 250 feet). If a winter den cannot be located, the USFWS or CDFG shall determine appropriate action with respect to the tortoise. Tortoises found above ground shall be turned over to the Acceptable Biologist
- No handling of tortoises will occur when the air temperature at 15 centimeters above ground exceeds 90 degrees Fahrenheit.
- Desert tortoise burrows shall be avoided to the maximum extent Feasible. An Acceptable Biologist shall excavate any burrows which cannot be avoided and will be disturbed by construction. Burrow excavation shall be conducted with the use of hand tools only, unless the Acceptable Biologist determines that the burrow is unoccupied immediately prior to burrow destruction.
- Only burrows within the limits of clearing and surface disturbance shall be excavated. Burrows outside these limits, but at risk from accidental crushing, shall be protected by the placement of deterrent barrier fencing between the burrow and the construction area. Installation and removal of such barrier fencing shall be under the direction and supervision of an Acceptable Biologist.
- For electrical transmission line and road construction projects, only burrows within the right-of-way shall be excavated. Burrows outside the right-of-way, but at risk from accidental crushing, shall be protected by the placement of deterrent barrier fencing between the burrow and the right-of-way. Installation and removal of such barrier fencing shall be under the direction and supervision of an Acceptable Biologist.
- Tortoises in the Conservation Areas are not to be removed from burrows until appropriate action is determined by USFWS or CDFG with respect to the tortoise. The response shall be carried out within 72 hours.
- Blasting is not permissible within 100 feet of an occupied tortoise burrow.

During construction, contractors will comply with the mitigation and minimization measures contained within this protocol. These measures are:

- All trenches, pits, or other excavations shall be inspected for tortoises by an Acceptable Biologist prior to filling.
- All pipes and culverts stored within desert tortoise Habitat shall have both ends capped to prevent entry by desert tortoises. During construction, all open ended pipeline segments that are welded in place shall be capped during periods of

construction inactivity to prevent entry by desert tortoises.

- Topsoil removed during trenching shall be re-spread on the pipeline construction area following compaction of the backfill. The area shall be restored as determined during the environmental review.
- All test pump water will be routed to the nearest wash or natural drainage. The route will be surveyed by an Acceptable Biologist. If tortoises are found in the drainage area the Acceptable Biologist will remove the tortoises.
- Powerlines associated with water development, such as to provide power for pumps, should be buried underground adjacent to the pipe. All above ground structures deemed to be necessary shall be equipped with functional anti-perching devices that would prevent their use by ravens and other predatory birds, and shall adhere to the electrical distribution protocol which follows.
- In order to perform routine O&M of the water systems such as wells, pumps, water lines and storage tanks, etc., employees are to be trained in the area of desert tortoise education. This training will be performed on a regular basis by an Acceptable Biologist for those personnel not previously trained. The training will include at a minimum the following: identification of tortoises, burrows, and other sign; and instructions on installing tortoise barrier fencing. During the course of basic O&M, desert tortoise will be avoided. Untrained employees shall not perform maintenance operations within the reserve.
- All disturbance areas around poles or concrete pads will be reduced to a size just large enough for the construction activity.
- Areas disturbed around poles or construction pads will be restored as determined during the pre-construction process.
- Poles or other above ground structures necessary for electrical distribution development shall be minimized as much as possible. All above ground structures shall be equipped with functional anti-perching devices that would prevent their use by ravens and other predatory birds.
- In order to perform routine O&M of the electrical distribution systems such as transmission lines and poles, substations, etc., employees are to be trained in the area of desert tortoise education. This training will be performed on a regular basis by a qualified biologist for those personnel not previously trained. The training will include at a minimum the following: identification of tortoises, burrows, and other sign; and instructions on installing tortoise barrier fencing. During the course of basic O&M, desert tortoise will be avoided. Untrained employees shall not perform maintenance operations within the non-Take areas.
- All trash and food items shall be promptly contained and removed daily from the project site to reduce the attractiveness of the area to common ravens and other desert tortoise predators.
- Construction activities which occur between dusk and dawn shall be limited to areas which have already been cleared of desert tortoises by the Acceptable Biologist and graded or located in a fenced right-of-way. Construction activities

shall not be permitted between dusk and dawn in areas not previously graded.

Active Season Protocol. This protocol is applicable to pre-construction and construction phases of utility development projects occurring between February 15 and November 1. It is identical to the Inactive Season Protocol with the following additions:

- Work areas shall be inspected for desert tortoises within 24 hours of the onset of construction. To facilitate implementation of this condition, burrow inspection and excavation may begin no more than seven (7) days in advance of construction activities, as long as a final check for desert tortoises is conducted at the time of construction.
- All pre-construction activities which could Take tortoises in any manner (e.g., driving off an established road, clearing vegetation, etc.) shall occur under the overall supervision of an Acceptable Biologist. Any hazards to tortoises created by this activity, such as drill holes, open trenches, pits, other excavations, or any steep-sided depressions, shall be checked three times a day for desert tortoises. These hazards shall be eliminated each day prior to the work crew leaving the site, which may include installing a barrier that will preclude entry by tortoises. Open trenches, pits or other excavations will be backfilled within 72 hours, whenever possible. A 3:1 slope shall be left at the end of every open trench to allow trapped desert tortoises to escape. Trenches not backfilled within 72 hours shall have a barrier installed around them to preclude entry by desert tortoises. All trenches, pits, or other excavations shall be inspected for tortoises by a biological monitor trained and approved by the Acceptable Biologist prior to filling.
- If a desert tortoise is found, the biological monitor shall notify the Acceptable Biologist who will remove the animal as soon as possible.
- Only burrows within the limits of clearing and surface disturbance shall be excavated. Burrows outside these limits, but at risk from accidental crushing, shall be protected by the placement of deterrent barrier fencing between the burrow and the construction area. The barrier fence shall be at least 20 feet long and shall be installed to direct the tortoise leaving the burrow away from the construction area. Installation and removal of such barrier fencing shall be under the direction and supervision of the biological monitor.
- If blasting is necessary for construction, all tortoises shall be removed from burrows within 100 feet of the blast area.

Disposition of Sick, Injured, or Dead Specimens. Upon locating dead, injured, or sick desert tortoises under any utility or road project, initial notification by the contact representative or Acceptable Biologist must be made to the USFWS or CDFG within three (3) working days of its finding. Written notification must be made within five (5) calendar days with the following information: date; time; location of the carcass; photograph of the carcass; and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care. Injured animals shall be taken care of by the Acceptable Biologist or an appropriately trained veterinarian. Should any treated tortoises survive, USFWS or CDFG should be contacted regarding the final disposition of the animals.

Fluvial Sand Transport. Activities, including O&M of facilities and construction of permitted new projects, in fluvial sand transport areas in the Cabazon, Stubbe and Cottonwood Canyons, Snow Creek/Windy Point, Whitewater Canyon, Whitewater Floodplain, Upper Mission Creek/Big Morongo Canyon, Mission Creek/Morongo Wash, Willow Hole, Long Canyon, Edom Hill, Thousand Palms, West Deception Canyon, and Indio Hills/Joshua Tree National Park Linkage Conservation Areas will be conducted in a manner to maintain the fluvial sand transport capacity of the system.

Le Conte's Thrasher. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot, or to O&M of Covered Activities. In modeled Le Conte's thrasher Habitat in all the Conservation Areas, during the nesting season, January 15 - June 15, prior to the start of construction activities, surveys will be conducted by an Acceptable Biologist on the construction site and within 500 feet of the construction site, or to the property boundary if less than 500 feet. If nesting Le Conte's thrashers are found, a 500 foot buffer, or to the property boundary if less than 500 feet, will be established around the nest site. The buffer will be staked and flagged. No construction will be permitted within the buffer during the breeding season of January 15 - June 15 or until the young have fledged.

Mesquite Hummocks and Mesquite Bosque Natural Communities. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot, or to O&M of Covered Activities. Construction activities in the Cabazon, Willow Hole, Thousand Palms, Indio Hills Palms, East Indio Hills, Dos Palmas, Coachella Valley Stormwater Channel and Delta, and Santa Rosa and San Jacinto Mountains Conservation Areas will avoid mesquite hummocks and mesquite bosque to the maximum extent Feasible.

Peninsular Bighorn Sheep Habitat. Completion of Covered Activities in Peninsular bighorn sheep Habitat in the Cabazon, Snow Creek/Windy Point, and Santa Rosa and San Jacinto Mountains Conservation Areas will be conducted outside of the January 1 - June 30 lambing season unless otherwise authorized through a Minor Amendment to the Plan with concurrence from the Wildlife Agencies. O&M of Covered Activities, including but not limited to refinishing the inside of water storage tanks, shall be scheduled to avoid the lambing season, but may extend into the January 1 – June 30 period if necessary to complete the activity, upon concurrence with the Wildlife Agencies.

For new projects in the above listed Conservation Areas, no toxic or invasive plant species may be used for landscaping. For existing public infrastructure facilities which have landscaping in Peninsular bighorn sheep Habitat in the Cabazon, Snow Creek/Windy Point, and Santa Rosa and San Jacinto Mountains Conservation Areas, the

Permittees who have such facilities will, with respect to those facilities, develop and implement a plan and schedule to remove or prevent access to oleander and any other plants known to be toxic to Peninsular bighorn sheep. The plan and schedule will be prepared within one (1) year of Permit issuance.

Triple-ribbed milkvetch. This measure does not apply to single-family residences and any non-commercial accessory uses and structures including but not limited to second units on an existing legal lot, or to O&M of Covered Activities. It is understood that O&M for infrastructure developed as part of a private development approved in compliance with the MSHCP that is later transferred to a public entity is included as a Covered Activity. For Covered Activities within modeled triple-ribbed milkvetch Habitat in the Whitewater Canyon, Whitewater Floodplain, Upper Mission Creek/Big Morongo Canyon, and Santa Rosa and San Jacinto Mountains Conservation Areas, surveys by an Acceptable Biologist will be required for activities during the growing and flowering period from February 1 - May 15. Any occurrences of the species will be flagged and public infrastructure projects shall avoid impacts to the plants to the maximum extent Feasible. In particular, known occurrences on a map maintained by CVCC shall not be disturbed.

Palm Springs Pocket Mouse. To avoid impacts to the Palm Springs pocket mouse and its habitat in the Upper Mission Creek/Big Morongo Canyon and Willow Hole Conservation Areas, Flood Control-related construction activities will comply with the following avoidance and minimization measures.

- **Clearing**: For construction that would involve disturbance to Palm Springs pocket mouse habitat, activity should be phased to the extent feasible and practicable so that suitable habitat islands are no farther than 300 feet apart at any given time to allow pocket mice to disperse between habitat patches across non-suitable habitat (i.e., unvegetated and/or compacted soils). Prior to project construction, a biological monitor familiar with this species should assist construction crews in planning access routes to avoid impacts to occupied habitat as much as feasible (i.e., placement of preferred routes on project plans and incorporation of methods to avoid as much suitable habitat/soil disturbance as possible). Furthermore, during construction activities, the biological monitor will ensure that connected, naturally vegetated areas with sandy soils and typical native vegetation remain intact to the extent feasible and practicable. Finally, construction that involves clearing of habitat should be avoided during the peak breeding season (approximately March to May), and activity should be limited as much as possible during the rest of the breeding season (January to February and June to August).
- **Revegetation**: Clearing of native vegetation (e.g., creosote, rabbitbrush, burrobush, cheesebush) should be followed by revegetation, including natural reestablishment and other means, resulting in habitat types of equal or superior biological value for Palm Springs pocket mouse.
- **Trapping/Holding**: All trapping activity should be conducted in accordance with accepted protocols and by a qualified biologist who possesses a Memorandum of

Understanding with CDFG for live-trapping of heteromyid species in Southern California.

- **Translocation**: Should translocation between distinct population groups be necessary, as determined through the Adaptive Management and Monitoring Program, activity should be conducted by a qualified biologist who possesses a Memorandum of Understanding with CDFG for live-trapping of heteromyid species in Southern California. Trapping and subsequent translocation activity should be conducted in accordance with accepted protocols. Translocation programs should be coordinated by or conducted by the CVCC and/or RMOC to determine the appropriate trapping, holding, marking, and handling methods and potential translocation sites.

Little San Bernardino Mountains Linanthus. This measure does not apply to single-family residences and any non-commercial accessory uses and structures, including but not limited to second units on an existing legal lot, or to O&M of Covered Activities. To avoid and minimize impacts to this species as much as possible, the following avoidance and minimization effort shall occur:

- **Salvage**: Salvage of top soil and/or seeds should occur prior to ground disturbance in accordance with Section 6.6.1. Salvage should be conducted by or in cooperation with the CVCC.

Appendix D CVMSHCP Covered Species

3.2 Species and Natural Communities Considered

This section delineates the species and natural communities identified in the Planning Agreement and identifies those now included in the Plan. Species considered but not covered by the Plan, and natural communities not included in the Conservation Areas are also identified. Information on the Covered Species and conserved natural communities that are protected in the Conservation Areas is presented in Sections 9 and 10.

3.2.1 Review of Species Identified in the Planning Agreement

The Planning Agreement among the local, state, and federal agencies comprising the Plan Participants that initiated development of the Plan identified 52 species to be considered for inclusion in the Plan and targeted all the natural communities in the Plan Area. As information was gathered through the planning process, the planning team continuously reviewed the list. Other experts on individual species were also consulted. The Covered Species in the Plan are listed in Table 3-1. These are species for which sufficient information existed or was gathered during the planning process to enable the development of Conservation measures.

Table 3-2 lists the species from the Planning Agreement that are not proposed for coverage under the Plan. Generally, the reasons for not covering a species include lack of known locations in the Plan Area or insufficient data to facilitate Conservation planning. Section 3.8 of Appendix I provides additional information on reasons why these species are not proposed for coverage.

Table 3-1: Species Covered under the Plan

Plants
Mecca aster, *Xylorhiza cognata*[1]
Coachella Valley milkvetch, *Astragalus lentiginosus* var. *coachellae* (FE)
Triple-ribbed milkvetch, *Astragalus tricarinatus* (FE)
Orocopia sage, *Salvia greatae*[1]
Little San Bernardino Mountains linanthus, *Linanthus maculatus (*or *Gilia maculata)* [1]
Invertebrates - Insects
Coachella Valley giant sand-treader cricket, *Macrobaenetes valgum*
Coachella Valley Jerusalem cricket, *Stenopelmatus cahuilaensis*
Fish
Desert pupfish, *Cyprinodon macularius* (FE/SE)

Table 3-1: Species Covered under the Plan (cont.)

<u>Amphibians</u>
Arroyo toad, *Bufo californicus* (FE/CSC)

<u>Reptiles</u>
Desert tortoise, *Gopherus agassizii* (FT/ST)
Flat-tailed horned lizard, *Phrynosoma mcallii* (CSC)
Coachella Valley fringe-toed lizard, *Uma inornata* (FT/SE)

<u>Birds</u>
Yuma clapper rail, *Rallus longirostris yumanensis* (FE/ST/SFP)
California black rail, *Laterallus jamaicensis* (ST/SFP)
Burrowing owl, *Athene cunicularia* (CSC)
Southwestern willow flycatcher, *Empidonax traillii extimus* (SE/FE)
Crissal thrasher, *Toxostoma crissale* (CSC)
Le Conte’s thrasher, *Toxostoma lecontei* (CSC)
Least Bell's vireo, *Vireo bellii pusillus* (FE/SE)
Gray vireo, *Vireo vicinior* (CSC)
Yellow warbler, *Dendroica petechia brewsteri* (CSC)
Yellow-breasted chat, *Icteria virens* (CSC)
Summer tanager, *Piranga rubra*[1]

<u>Mammals</u>
Southern yellow bat, *Lasiurus ega* or *xanthinus*[1]
Coachella Valley round-tailed ground squirrel, *Spermophilus tereticaudus chlorus* (C/CSC)
Palm Springs pocket mouse, *Perognathus longimembris bangsi* (CSC)
Peninsular bighorn sheep, *Ovis canadensis nelsoni* (FE/ST/SFP)

(Footnotes are explained below.)

The status codes used in the table are identified in the following key, as listed in the *California Natural Diversity Data Base Special Animals List and Special Plants List* from July 2000 (CNDDB 2000).

Key:			
	FE	=	Federal Endangered
	FT	=	Federal Threatened
	FC	=	Federal Candidate
	SE	=	State Endangered
	ST	=	State Threatened
	SC	=	State Candidate
	SFP	=	State Fully Protected
	CSC	=	Species of Special Concern (a state list of species that are at risk due to habitat modification or destruction, over-collecting, disease, or other threats)
	CNPS	=	Rare in California

[1] These species have no official status at this time; however, USFWS, CDFG, and the SAC have recommended inclusion of the species because of the likelihood of their being elevated to listing status in the coming years due to their rarity and decline. Note, also, that the Department of the Interior eliminated the category of FC2 subsequent to the adoption of the Planning Agreement.

Table 3-2: Species Considered but Not Proposed for Coverage under the Plan

Plants
California ditaxis, *Ditaxis californica*
Cliff spurge, *Euphorbia misera*
Flat-seeded spurge, *Chamaesyce platysperma*
Glandular ditaxis, *Ditaxis clariana*
Robison's monardella, *Monardella robisonii*
Invertebrates - Insects
Casey's June beetle, *Dinacoma caseyi*
Coachella Valley grasshopper, *Spaniacris deserticola*
Pratt's dark aurora blue butterfly *Euphilotes enoptes cryptorufes*
Invertebrates - Other
Morongo desert snail, *Eremarionta morongoana*
Thousand Palms desert snail, *Eremarionta millepalmarum*
Amphibians
California red-legged frog, *Rana aurora draytonii* (FT)
Desert slender salamander, *Batrachoseps aridus* (FE)
Lowland leopard frog, *Rana yavapiensis*
Mountain yellow-legged frog, *Rana muscosa* (FE)
Reptiles
California legless lizard, *Anniella pulchra pulchra*
San Diego horned lizard, *Phrynosoma coronatum blainvillei*
Mammals
California leaf-nosed bat, *Macrotus californicus*
California (Western) mastiff bat, *Eumops perotis californicus*
Fringed myotis, *Myotis thysanodes*
Long-eared myotis, *Myotis evotis*
Long-legged myotis, *Myotis volans*
Pallid bat, *Antrozous pallidus*
Pocketed free-tailed bat, *Nyctinomops femorosaccus*
Townsend's (Western) big-eared bat, *Corynorhinus townsendii pallescens*
Western small-footed myotis, *Myotis ciliolabrum*
Yuma myotis, *Myotis yumanensis*

3.2.2 Review of Natural Communities Identified in the Planning Agreement

The Planning Agreement listed 23 natural communities known to occur in the Plan Area. Through the planning process a total of 46 natural communities were identified in the Plan Area. Of these, 27 natural communities provide Habitat for the Covered Species and are the focal point for the establishment of Conservation Areas. The conserved natural communities included in the

Plan's Conservation Areas are listed in Table 3-3, as named and described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), with the addition of five new natural community types developed by the SAC to distinguish better among the blowsand communities in the Plan Area. Figure 3-1 depicts the natural communities within the Plan Area, as well as developed areas.

Table 3-3: Natural Communities Included in the Plan

Active desert dunes
Stabilized and partially stabilized desert dunes
Active desert sand fields
Ephemeral desert sand fields
Stabilized and partially stabilized desert sand fields
Stabilized shielded desert sand fields
Mesquite hummocks
Sonoran creosote bush scrub
Sonoran mixed woody and succulent scrub
Mojave mixed woody scrub
Desert saltbush scrub
Desert sink scrub
Chamise chaparral
Red shank chaparral
Semi-desert chaparral
Interior live oak chaparral
Cismontane alkali marsh
Coastal and valley freshwater marsh
Southern arroyo willow riparian forest
Sonoran cottonwood-willow riparian forest
Mesquite bosque
Desert dry wash woodland
Desert fan palm oasis woodland
Southern sycamore-alder riparian woodland
Arrowweed scrub
Mojavean pinyon and juniper woodland
Peninsular juniper woodland and scrub

The other natural communities are already adequately protected in the Plan Area on public lands outside the Conservation Areas, except for tamarisk scrub, active shielded desert dunes, and Riversidean desert scrub. This existing protection adds to the overall Conservation value of the Plan in protecting watersheds, providing Habitat for large predators, protecting overall biological diversity in the Plan Area, providing buffers for Conservation Areas established under this Plan, and providing areas that could become important to Covered Species under conditions of potential future climatic change. With regard to tamarisk scrub, it is not a "natural" community in that it is dominated by an exotic plant species, i.e. tamarisk. In areas where some tamarisk scrub is included in the Conservation Areas, the intent is to restore it to the appropriate natural community to the maximum extent possible. The natural communities that are not included in the Plan are listed in Table 3-4. Additional information about these natural communities and why they were not included in the Plan is found in Section 3.9 of Appendix I.

Table 3-4: Natural Communities Considered but Not Included in the Plan

Tamarisk scrub
Active shielded desert dunes
Riversidean desert scrub
Mojave mixed steppe
Blackbush scrub
Upper Sonoran mixed chaparral
Upper Sonoran manzanita chaparral
Mixed montane chaparral
Northern mixed chaparral
Scrub oak chaparral
Canyon live oak forest
Black oak forest
Coulter pine forest
Bigcone spruce-canyon oak forest
Westside ponderosa pine forest
Sierran mixed coniferous forest
Jeffrey pine forest
Jeffrey pine-fir forest
Southern California subalpine forest

Appendix E Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

- 1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
- 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Local Policies

Coachella Valley MSHCP

A Multiple Species Habitat Conservation Plan (Plan) was prepared for the entire Coachella Valley and surrounding mountains to address current and potential future state and federal Endangered Species Act issues in the Plan Area. A Memorandum of Understanding ("Planning Agreement") was developed to govern the preparation of the Plan. In late 1995 and early 1996, under the auspices of CVAG, the cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage; County of Riverside (County); U.S. Fish and Wildlife Service (USFWS); California Department of Fish and Game (CDFG); Bureau of Land Management (BLM); U.S. Forest Service (USFS); and National Park Service (NPS) signed the Planning Agreement to initiate the planning effort. Subsequently, Caltrans, Coachella Valley Water District (CVWD), Imperial Irrigation District (IID), Riverside County Flood Control and Water Conservation District (County Flood Control), Riverside County Regional Park and Open Space District (County Parks), Riverside County Waste Resources Management District (County Waste), California Department of Parks and Recreation (State Parks), and CVMC decided to participate in the Plan.

The Plan balances environmental protection and economic development objectives in the Plan Area and simplifies compliance with endangered species related laws. The Plan is intended to satisfy the legal requirements for the issuance of Permits that will allow the Take of species covered by the Plan in the course of otherwise lawful activities. The Plan will, to the maximum extent practicable, minimize and mitigate the impacts of the Taking and provide for Conservation of the Covered Species.

The Conservation Plan includes the establishment of an MSHCP Reserve System, setting Conservation Objectives to ensure the Conservation of the Covered Species and conserved natural communities in the MSHCP Reserve System, provisions for management of the MSHCP Reserve System, and a Monitoring Program, and Adaptive Management. The MSHCP Reserve System will be established from lands within

21 Conservation Areas. Because some Take Authorization is provided under the Plan for Development in Conservation Areas, the actual MSHCP Reserve System will be somewhat smaller than the total acres in the Conservation Areas. When assembled, the Reserve System will provide for the Conservation of the Covered Species in the Plan Area.

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of ''waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of ''waters of the United States'' all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

APPENDIX J

Cultural Resources Report

Phase 1 Cultural Resources Assessment of a 1,600-Foot Extension of the Imperial Irrigation District Distribution Line in Support of the Coachella Valley Arena Project, near Thousand Palms, Riverside County, California

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Myoma, CA, 1978 U.S. Geological Survey 7.5-Minute Quadrangle
Township 4 South, Range 6 East, Sections 27 and 28
Assessor's Parcel No. 694-050-019
Riverside County Planning Department Application No. PPT200021/SP00343A02

Survey Conducted: February 12, 2021
Report Completed: February 17, 2021

Keywords: 1.9 acres, survey, negative findings

Technical Report 21-24

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LIST OF ACRONYMS AND ABBREVIATIONS

ACBCI	Agua Caliente Band of Cahuilla Indians
ASA	Archaeological Survey Association
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
County	County of Riverside
EIC	Eastern Information Center
EIR	Environmental Impact Report
GLO	U.S. General Land Office
HSC	*Health and Safety Code*
NAHC	Native American Heritage Commission
PRC	*Public Resources Code*
SRI	Statistical Research, Inc.
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USGS	U.S. Geological Survey

Statistical Research, Inc. (SRI), conducted a cultural resources survey in support of a proposed extension to an existing Imperial Irrigation District electrical-distribution line. The project area includes 1.9 acres (0.8 ha) of land near Thousand Palms, California. The project area is located in Sections 27 and 28 of Township 4 South, Range 6 East, on the San Bernardino Base and Meridian, as shown on the Myoma, California, 7.5-minute U.S. Geological Survey topographic map.

This development is considered a "project" subject to the California Environmental Quality Act (CEQA; *Public Resources Code* 21000–21177, as amended), which mandates that the lead agency consider the effects of the project on historical and archaeological resources. The County of Riverside (County) will be the CEQA lead agency. To comply with CEQA, Meridian Consultants is preparing an Addendum to the County's 2006 Environmental Impact Report (EIR) for this project. As part of the preparation for the Addendum, Meridian Consultants contracted with SRI to conduct a Phase I cultural resource study of the 1,600-foot- (487.7-m-) long project area. The purpose of the study is to prepare the relevant cultural resources documents in support of the EIR Addendum.

The cultural resources study began with a records search and literature review of the project area. The records search identified no previously recorded cultural resources within the project area or within the ½-mile records-search buffer around the project area. The records search showed that the entirety of the project area had been previously surveyed for cultural resources.

Following the records search, SRI surveyed the 1.9-acre (0.8-ha) project area. The entire project area was surveyed. The project area is dominated by sandy soils and sparse desert vegetation and affords good ground visibility. No cultural resources were identified during the survey. Geoarchaeological studies of the project area indicate that it has a moderate sensitivity for buried cultural resources. So, cultural resources could be present just under the ground surface. SRI therefore recommends that a qualified archaeological monitor be present during initial ground-disturbing activities in relation to the project.

Introduction and Setting

A utility provider, Imperial Irrigation District, proposes an extension to an existing electrical-distribution line that currently ends approximately 1,600 feet (488 m) north of Cook Street/Chase School Road in unincorporated Riverside County, near Thousand Palms, California. The disturbance to extend this distribution line along an existing dirt road will be limited to drilling approximately 11 holes to a depth of 6 feet (1.8 m) and installing 40-foot- (12.2-m-) tall power poles in the 11 holes. The construction-area footprint will include a 10-foot- (3-m-) diameter area in each pole location and an additional 30 feet (9.1 m) to the west of the distribution line; the length of the surveyed area is 1,600 feet (488 m). The surveyed area for this project will cover approximately 1.9 acres (0.8 ha). This line extension is proposed to support development in the approved NorthStar Specific Plan No. 343 area (Fagelson 2006). The project area is located in Sections 27 and 28 of Township 4 South, Range 6 East, on the San Bernardino Base and Meridian, as shown on the Myoma, California, 7.5-minute U.S. Geological Survey (USGS) topographic map (Figures 1 and 2).

This development is considered a “project” subject to the California Environmental Quality Act (CEQA; *Public Resources Code* [PRC] 21000–21177, as amended), which mandates that the lead agency consider the effects of the project on historical and archaeological resources. The County of Riverside (County) will be the CEQA lead agency. To comply with CEQA, Meridian Consultants is preparing an Addendum to the County’s 2006 Environmental Impact Report (EIR) for this project. As part of the preparation of the Addendum, Meridian Consultants has contracted with Statistical Research, Inc. (SRI), to conduct a Phase I cultural resources study of the 1,600-foot- (488-m-) long project area. The purpose of the study is to prepare the relevant cultural resources documents in support of the EIR Addendum.

Project Personnel

Senior SRI personnel meet the Secretary of the Interior’s Professional Qualifications Standards in their respective disciplines. The personnel involved with the implementation of this project have extensive experience in the region and have worked on a number of cultural resources surveys across southern California. Qualifications of the principal investigator are provided in Appendix A.

- Patrick B. Stanton, M.A., Registered Professional Archaeologist (principal investigator)
- Alyssa Canoff, B.A. (crew chief)

Environmental Setting

The project area is located in the central part of the Coachella Valley, a low valley sandwiched between the Santa Rosa Mountains to the south and southeast and the Little San Bernardino Mountains to the north. The valley is part of the Colorado Desert geomorphic province, an area that includes both sides of the lower Colorado River and the Coachella and Imperial Valleys of California (Jenkins 1980).

High temperatures during the summer months average between 39°C and 42°C (102°F and 108°F). During the winter, the mean temperature falls to about 22°C (71°F) during the day, and lows reach near 7°C (44°F) at night. The average annual precipitation in the area is 12.4 cm (4.9 inches), most of which falls between December and March (WorldClimate.com 2021), although occasional summer thunderstorms in August and September provide additional rainfall.

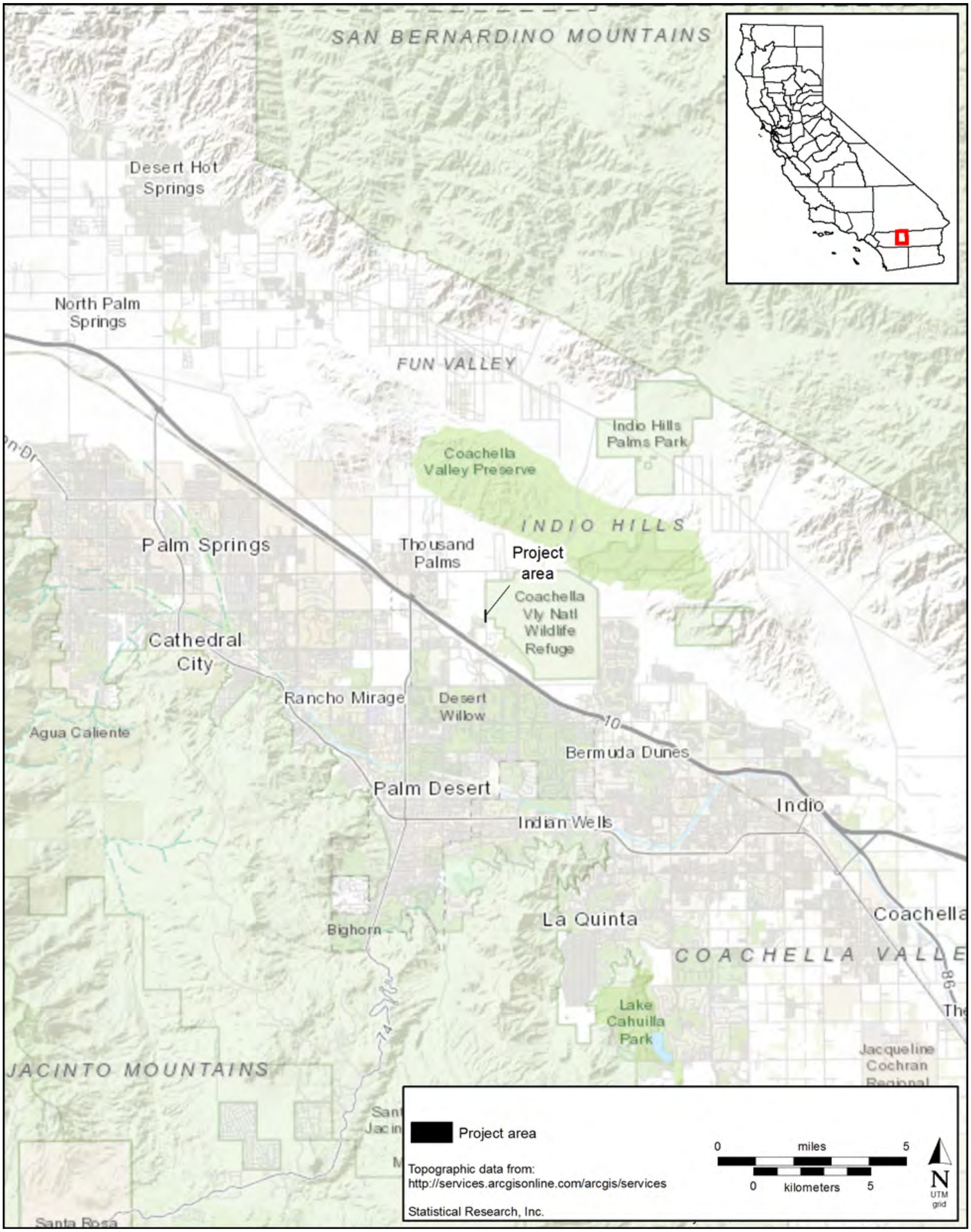

Figure 1. Vicinity map of the project area.

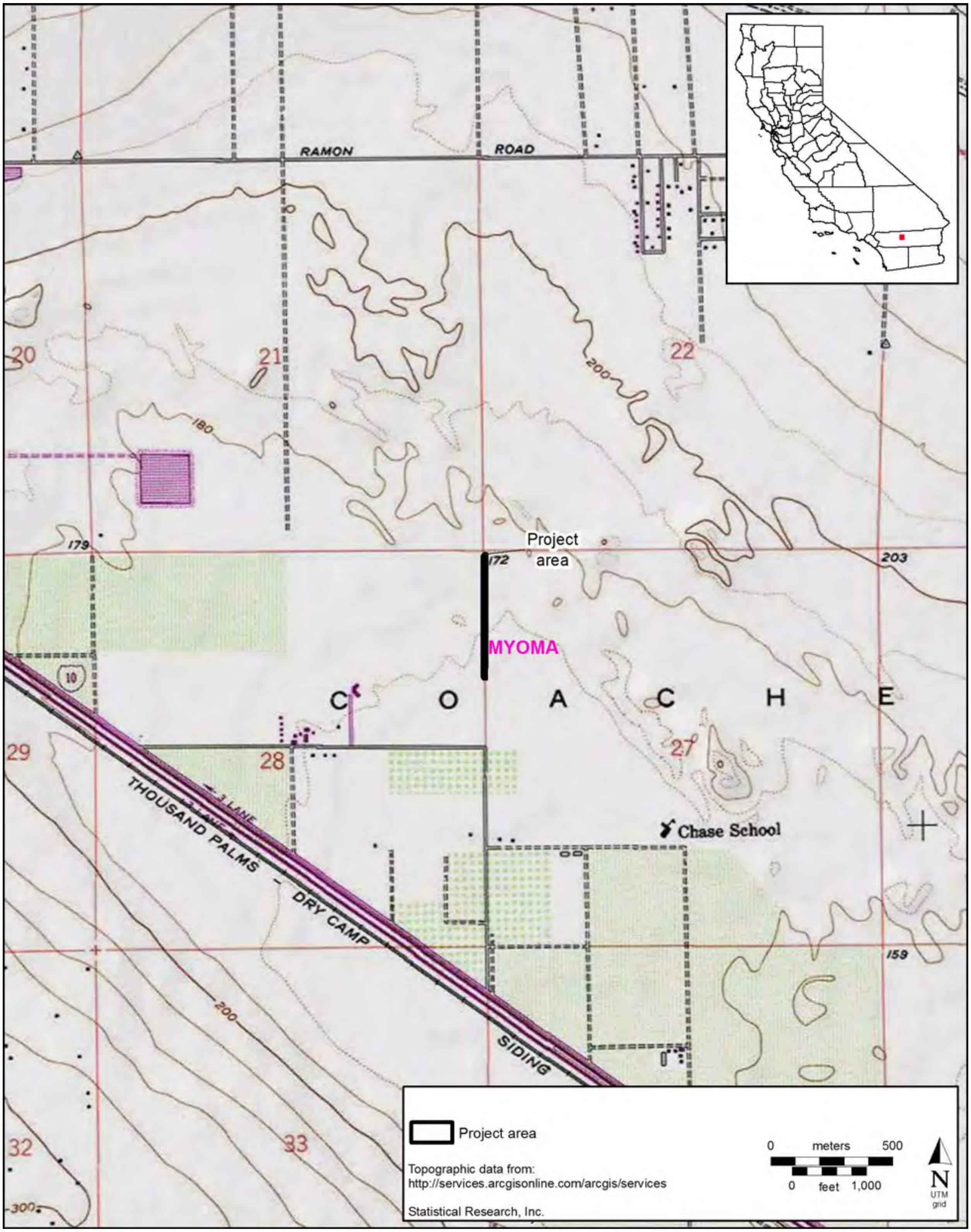

Figure 2. Location map of the project area.

Plant Communities

The Coachella Valley is part of the Sonoran Life Zone and is characterized by the Creosote Bush Scrub plant community (Hall and Grinnell 1919; Munz 1974; Schoenherr 1992). This life zone is characterized by the presence of creosote bush (*Larrea tridentata*), mesquite (*Prosopis glandulosa*), brittlebush (*Encelia farinosa*), cholla and pricklypear cacti (*Opuntia* spp.), chuparosa (*Beloperone californica*), desert lavender (*Hyptis emoryi*), sage (*Salvia* spp.), and various grasses. California fan palm (*Washingtonia filifera*), the only species of palm native to California, is also present in oases surrounding the valley. Desert oases also provide habitat for a number of other species, including screwbean mesquite (*Prosopis pubescens*) and Fremont cottonwood (*Populus fremontii*). Many of the plants known to the historical-period Cahuilla, the cultural group that occupied the Coachella Valley at the time of European contact, were medicinal or therapeutic in nature (for a detailed discussion, see Bean and Saubel [1972]).

Animal Communities

A number of desert animals inhabit the greater Coachella Valley. They include mammals such as coyotes (*Canis latrans*), gray foxes (*Urocyon cinereoargenteus*), various mouse species (*Peromyscus* spp. and *Perognathus* spp.), squirrels (*Spermophilus* [*Citellus*] spp.), and lagomorphs (*Lepus californicus* and *Sylvilagus audubonii*); reptiles, including rattlesnakes (*Crotalus* spp.) and a variety of lizards (*Crotaphytus* spp., *Dipsosaurus* spp., *Sceloporus* spp., *Streptosaurus* spp., and *Urosaurus* spp.); and birds such as turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), mourning doves (*Zenaida macroura*), and ravens (*Corvus corax*). During prehistoric times, and up to the early twentieth century, pronghorn (*Antilocapra americana*) were common in the Coachella Valley, but they have since been pushed out by modern development (Jaeger 1965). Besides representing sources of food, many of the animals were important components of Cahuilla rituals, and their bones have been found in ritual contexts at sites in Tahquitz Canyon (see Bean et al. 1995).

Geology

The Coachella Valley forms the northern extent of the Salton Trough, a northwest–southeast-trending depression that reaches from the San Gorgonio Pass to the Gulf of California, located 280 km (174 miles) to the south. The valley has been heavily shaped by tectonic forces involving the interaction of the Pacific Plate and the North American Plate along the San Andreas Fault system (Harden 2004). The valley is a fault-bound depression, with the San Andreas Fault running along the northern margin of the valley. The Banning Fault, a subordinate fault to the San Andreas, runs east–west through the valley, between the San Andreas Fault and the San Jacinto Fault to the west. Folding in the earth's crust caused by the faults has blocked the flow of underground aquifers and has resulted in numerous springs and pools. These water sources were crucial resources for prehistoric groups (Wilke 1978). The Whitewater River was the other major source of water in the Coachella Valley. The river starts on the flanks of Mount San Gorgonio and enters the Coachella Valley through the Banning Pass. It runs along the southern edge of the valley, approximately 3.8 km (6.1 miles) south of the project area.

The mountain ranges surrounding the Coachella Valley are uplifted blocks of continental crust. The Santa Rosa Mountains are located at the northern end of the Peninsular Ranges, a series of mountain ranges running southeastward from the Los Angeles Basin to the tip of the Baja Peninsula (Jahns 1954:3) that forms a natural border between the coastal areas to the west and the deserts to the east. The mountains are composed of plutonic intrusions that have been uplifted through tectonic activity. The highest point is San Jacinto Mountain, at 3,307 m (10,849 feet), which towers above the present-day city of Palm Springs. The Little San Bernardino Mountains are part of the Transverse Ranges, a series of east–west-trending mountains that are similar in composition to the Peninsular Ranges and include large masses of Mesozoic-era plutonic rocks. The summits of the Transverse Ranges exceed 3,500 m (11,483 feet) at San Gorgonio Peak (Bailey and Jahns 1954).

Much of the valley bottom is at or below sea level, with the deepest areas dipping to 80 m (263 feet) below sea level. The project area is situated at an elevation of approximately 76 m (249 feet) above mean sea level, in the middle of the valley. Both alluvial and aeolian sediments are present within the valley. Geologic mapping of Quaternary sediments in the area by Lundstrom et al. (2001) indicated that alluvial-fan surfaces of probable late Holocene age are extensive and show very weak, nonoxidized soils. Recent aeolian sand is also common in the area and is mapped as dunes and sand ramps forming mantles on slopes in the valley (Lundstrom et al. 2001).

The hot and dry climate of the Coachella Valley would normally place significant restrictions on human activities. However, the valley has been repeatedly inundated in the past, as a result of flooding brought on by changes in the course of the Colorado River. Over many episodes, the river left its banks and flooded the Salton Trough, resulting in the creation of ancient Lake Cahuilla, also referred to as Blake's Sea or Lake LaConte (Wilke 1978). At its maximum, the lake reached 184 km (114.3 miles) long, 54 km (33.6 miles) wide, and 96 m (315 feet) in depth, and it inundated a considerable portion of the valley. When the Colorado River resumed its normal course, the lake would begin to dry. Recent studies have suggested that it would have taken approximately 56 years for the lake to be completely dry after having reached the high-water mark (Laylander 1997).

Between 800 and 300 B.P., there were at least three documented cycles of flooding and desiccation, but it is not clear whether the lake during that time was primarily full with only minor drying episodes, mostly empty and only occasionally inundated, or somewhere in between (Laylander 1997; Waters 1983; Wilke 1978; see also Schaefer and Laylander 2007). The most-recent stand of Lake Cahuilla may have been brief, occurring between 700 and 500 B.P.

Much of the prehistoric occupation of the Coachella Valley appears to be correlated with the presence of Lake Cahuilla. The earliest known sites in the valley date to the Late Archaic period, roughly 4000–1500 B.P. (Love and Dahdul 2002). Most of these sites are located at or near the ancient lakeshore, as are several sites dating to the Late Prehistoric period (Sutton and Wilke 1988; Wilke 1978). The project area is located approximately 9 km (5.6 miles) northwest of the maximum shoreline of Lake Cahuilla. Instead of the lacustrine resources available at the lakeside, human use of the project area would have focused primarily on resources available in the desert, at nearby oases, and along the Whitewater River wash.

Cultural Setting

The following section describes the general chronological sequence of cultural development in the Colorado Desert as it is currently understood.

Prehistoric Background

The prehistory of the Colorado Desert, including the northern Coachella Valley, is poorly understood, although a number of recent studies have greatly improved our knowledge. Treatments of the region include the classic work of Rogers (1945, 1966) and the more-recent works of Schaefer (1994), Love and Dahdul (2002), and Schaefer and Laylander (2007). Schaefer (1994) defined three principal prehistoric periods: the Paleoindian, Archaic, and Late Prehistoric periods (see also Love and Dahdul 2002); that sequence is generally followed below.

The Paleoindian Period (12,000–8000 B.P.)

Paleoindian period groups, probably with Clovis complex technology, occupied much of what is now California beginning about 12,000 years ago. However, there is very little evidence of Paleoindian period occupation of the northern Coachella Valley. The reasons for this are unclear but may be related to a lack of habitat for the large game hunted by Clovis people.

Across much of western North America, the Clovis complex developed into the Western Stemmed Point tradition or Western Pluvial Lakes tradition after 10,000 B.P. (Bedwell 1973), probably in response to the warming and drying climate of the early Holocene. This tradition is characterized by crescents and large stemmed, shouldered, and lanceolate points (Willig and Aikens 1988:3). This cultural assemblage is commonly called San Dieguito in southern California and had an economy presumably based on the exploitation of marsh plants, fish, freshwater shellfish, and large and small game (Rogers 1966). Rogers had originally defined three distinct phases associated with the San Dieguito cultures, but further excavations at the sites where he worked have failed to find evidence of these distinctions (Vaughan 1982; Warren 1967:171).

There is little evidence of a San Dieguito presence in the northern Coachella Valley, probably just a few "small, mobile bands exploiting small and large game and collecting seasonally available wild plants" (Schaefer 1994:63; see also Schaefer and Laylander 2007). The reasons for this are unclear, but the lack of an early occupation may indicate that Lake Cahuilla was not inundated during that time.

The Archaic Period (8000–1500 B.P.)

Beginning about 8,000 years ago, the climate became hotter and drier, and it appears that the northern Coachella Valley was basically abandoned during that time (Schaefer 1994:64). At best, the record suggests only a minor occupation by relatively few people. When the climate began to cool, after about 4,000 years ago, during the Late Archaic period, it appears that the Colorado Desert was reoccupied (Love and Dahdul 2002; Schaefer 1994:64), and several archaeological sites in the northern Coachella Valley are dated to this time. It appears that, as with later occupations, much of the occupation centered on the shores of Lake Cahuilla. However, very little is known about overall Late Archaic period adaptations or social structure.

One of the best-documented Late Archaic period sites in the Colorado Desert is the Indian Hill Rockshelter near Anza-Borrego State Park (McDonald 1992; Wilke et al. 1986), located approximately 50 km (31 miles) south of the project area. Excavators found a number of rock-lined storage pits as well as hearths and Elko Eared projectile points. Radiocarbon dates from these levels indicated that they were occupied approximately 4,000 years ago. McDonald (1992) postulated that this was a base camp for hunter-gatherers who likely roamed over a large area in search of food. A rockshelter from Tahquitz Canyon also contained rock-lined pits and similar artifacts, but no radiocarbon dates were taken at the site; so, its true age is unclear (Schaefer 2002). Taken together, these sites suggest that people lived in highly mobile bands and took advantage of a variety of resources in the area.

Excavations at two sites near Desert Hot Springs located 20 km (12.4 miles) northwest of the project area (CA-RIV-1827 and CA-RIV-2642) encountered deposits dating to the transition from the Late Archaic period to the Late Prehistoric period, approximately 1200–1000 B.P. (Dahdul et al. 2008; Drover 1982, 1988; Hogan et al. 2010). These sites contained evidence of habitation, including hearth features; activity surfaces and a variety of artifact types, such as flaked stone debitage; faunal remains; and possible human remains. These sites are located adjacent to the ethnohistorically known Seven Palms Rancheria (CA-RIV-154), and it is likely that they represent an early occupation of that village.

The Late Prehistoric Period (1500–200 B.P.)

Beginning about 1500 B.P., Yuman (or Patayan) agricultural groups along the Colorado River area began to influence Colorado Desert groups, particularly in the Coachella Valley. This Patayan pattern included a preceramic phase (Rogers 1945:170; Warren 1984; Waters 1982a, 1982b) and three ceramic phases, Patayan I (ca. 1500–1000 B.P.), II (ca. 1000–500 B.P.), and III (after ca. 500 B.P.). After about 1000 B.P. (Patayan II), a number of cultural traits, including new ceramic types, small triangular points, and cremations, moved west from the Colorado River, either through diffusion or perhaps carried by some migrating Yuman people. Whichever the case, long-distance trade networks were established between the Coachella Valley and the Colorado River.

Agricultural crops were also probably introduced into the area during this time. Along the Colorado River, domesticated crops constituted up to half of the diet of Yumans (Castetter and Bell 1951). Ethnographically (see below), the Cahuilla were known to have large, walk-in wells that could have been used in pot irrigation (Bean and Mason 1962), although small check dams and other simple irrigation technologies likely also were used (Wilke and Lawton 1975:28).

The Late Prehistoric period groups that occupied the Coachella Valley were the direct ancestors of the ethnographic Cahuilla. This period represents a significant increase in human occupation of the valley, and several large archaeological sites from the period have been identified (see Bean et al. 1995; Schaefer 1994; Sutton and Wilke 1988; Wilke 1978).

Ethnographic Background

The aboriginal group that occupied the northern Coachella Valley during the historical period was the Desert Cahuilla, who, along with the Mountain and Pass Cahuilla, constituted the ethnographic Cahuilla. The Cahuilla spoke a language of the Takic branch of Northern Uto-Aztecan (see Goddard 1996:Table 3), and the Desert Cahuilla spoke a distinct dialect of Cahuilla. Descriptions of Cahuilla culture have been presented by Barrows (1900), Hooper (1920), Curtis (1926), Strong (1929), and Bean (1972, 1978). There have been few archaeological studies of the historical-period Cahuilla, but testing at the former Mission Creek Indian Reservation, approximately 42 km (26.1 miles) northwest of the project area, identified occupations stretching from the Late Prehistoric period into the early twentieth century (Altschul 1986). Similarly, excavations at Tahquitz Canyon (Bean et al. 1995), 20 km (12.4 miles) west of the project area, found a large village complex dating to between A.D. 1600 and 1870.

Villages were located in areas with access to a number of resources, either at springs or where wells could be easily dug. As a result, most villages relied on hand-excavated walk-in wells for water. These wells were dug to a depth of about 6 m (20 feet), to reach the water table. Villages were loose clusters of houses spread over an area up to 1 km (0.6 miles) across. Some of the houses were large (e.g., 6 m [20 feet] in length), whereas others were smaller, and at least one large ceremonial structure was present in each village (Bean 1972:72). Once established, villages were considered permanent (Bean 1972:74) and were occupied by lineages. Villages were connected to each other by a complex system of trails.

The Cahuilla were organized into moieties, tribelets (i.e., clans), and then lineages. The two moieties were the *túktem* (Wildcats) and *'istam* (Coyotes; Bean 1978; Garcia et al. 2011). The lineages were landholding groups, and each occupied its own village. The adjacent lineage, with its own village, would generally belong to the other moiety. This arrangement served to ensure access to different habitats. Each village was economically independent.

The Desert Cahuilla exploited a large number of plant species (Barrows 1900; Bean and Saubel 1972); mesquite (*Prosopis* spp.) on the valley floor was the primary staple. Other important resources, such as agave (*Agave deserti*), pinyon (*Pinus* spp.), and acorns (*Quercus* spp.), were obtained in the mountains to the west. More than 150 species of plants were used for food, fibers, medicines, manufactures, and dyes. The Cahuilla exploited a variety of animals from mountain habitats, including deer (*Odocoileus* sp.), mountain sheep (*Ovis canadensis*), pronghorn, and smaller animals, such as rabbits and rodents, from desert habitats.

The Desert Cahuilla also grew a few agricultural crops, namely corn, beans, and squash, that were probably obtained from native peoples along the Colorado River to the east. Crops were irrigated from springs (Wilke and Lawton 1975); with the arrival of Europeans, wheat, melons, barley, and fruit trees were added (Bean and Mason 1962; Lawton and Bean 1968). By the late eighteenth century, the Cahuilla had adopted ranching as an important industry and also worked as wage laborers on the railroads and at farms and ranches.

After the smallpox and measles epidemic of 1863, the Cahuilla population, originally perhaps as many as 3,000 people, declined rapidly. In addition, the emigration of young people seeking work in the metropolitan areas of southern California resulted in many Cahuilla moving away from their traditional areas (Harvey 1967). In 1974, approximately 900 people claimed Cahuilla descent, most of whom lived on one of the many Cahuilla reservations in inland southern California (Garcia et al. 2011:21).

The Agua Caliente Indian Reservation was founded in 1876 by an Executive Order of President Ulysses S. Grant and was expanded in 1877 and 1907. The reservation covers roughly 31,420 acres (12,715 ha) and consists of all even-numbered sections and all unsurveyed portions of Township 4 South, Ranges 4 and 5 East, and Township 5 South, Range 4 East, on the San Bernardino Meridian, with the exception of sections already given out by the government (Garcia et al. 2011:21). The odd-numbered sections had already been given to railroads as an incentive to develop cross-country rail lines, and so, the reservation appears as a checkerboard pattern on maps. In 1891, Congress passed the Mission Indian Relief Act, which authorized allotments of reservation land to be given to individuals. The allotment elections were finally approved by the Secretary of the Interior as part of the Equalization Act in 1959 (Public Law 86-339), which finalized the individual Indian allotments and set aside certain lands for tribal use and cemeteries. The Agua Caliente Tribe and its members currently constitute the largest single landowner in the city of Palm Springs. The Agua Caliente Tribe has a land-exchange agreement with the U.S. Department of the Interior (USDI) Bureau of Land Management (BLM) and is actively acquiring other non-reservation land.

Historical-Period Background

The extreme aridity of the Colorado Desert acted as a deterrent to many early explorers. The earliest recorded European visit to the Coachella Valley was in the winter of 1823–1824 by José Romero, the leader of an expedition attempting to reach the Colorado River by a new route (Bean and Mason 1962). Until the mid-nineteenth century, however, most nonnative forays into the area were confined to the established prehistoric trail systems. A number of those trails passed through the western Coachella Valley, including the important Cocomaricopa Trail, which connected Arizona with the cultures along the southern California coast (Bean and Vane 1995).

In 1853, William P. Blake described the Coachella Valley during the Pacific Railroad Survey expedition (Blake 1857). Blake recorded the general environment, noted the locations of Indian villages, described native agriculture in the valley, and recorded some oral traditions of the Indians concerning life around ancient Lake Cahuilla. In 1855 and 1856, the U.S. Land Office Survey surveyed the valley and divided it into townships and sections (Wilke and Lawton 1975).

European settlement of the valley intensified after the completion of the Southern Pacific Railroad in 1877 (Heath 1945). The Edom siding was located on the rail line, approximately 3.4 km (2.1 miles) northwest of the project area, where there was a grove of trees and four dwellings to house section hands and their families (Moore 1968:13; Thousand Palms Chamber of Commerce 2021). In the 1880s, the Homestead Act and the Desert Land Act opened much of the public land in the area to private development. Farming was the primary economic activity in the valley, supported by a variety of wells that accessed sizable underground water resources. In 1948–1949, construction of the Coachella Canal supplied additional water to the valley. Much of the area to the east of the project area, in the area around the town of Indio, is still an important agricultural center. Vegetables, cotton, citrus, and particularly dates were, and still are, important cash crops.

The development of the state highway system in the early twentieth century opened the valley to further development. State Route 99 (now Varner Road) was completed through the area in 1912. The Coachella Valley became a popular vacation spot for the well-to-do in the Los Angeles Basin. Resorts and hotels, equestrian centers, and, by the mid-twentieth century, country clubs appeared throughout the valley. In particular, the Palm Springs area was made famous by Cary Grant, Bob Hope, and Lucille Ball, among others. Ramon Road was graded between Palm Springs and Edom in 1942 (Thousand Palms Chamber of Commerce 2021). When Interstate 10 was completed on its current alignment in 1957, it bypassed the Edom business district. Access was improved in 1962, the settlement of Edom was renamed Thousand Palms, and development quickly followed (Thousand Palms Chamber of Commerce 2021). The City developed as a resort community following World War II and was incorporated in 1973 (City of Palm Desert 2021).

During the late twentieth century, development in the Coachella valley expanded rapidly, with scores of country clubs and housing developments appearing along U.S. Highway 111 and Interstate 10. In addition to the Desert Willow Golf Resort, the project area is surrounded on three sides by other similar developments. The advent of Native American gaming initiatives has also driven economic development in the valley, with at least three casino resorts present in the valley and several others located nearby.

Previous Archaeological Research in the Coachella Valley

A great deal of archaeological research has been carried out within the Coachella Valley and the Colorado Desert since the early twentieth century. The earliest work was that of Malcom Rogers (1929, 1939, 1945, 1958, 1966), who investigated the earliest occupations in southern California, the San Dieguito cultural assemblages, and later Yuman occupations along the lower Colorado River. Although more-recent research has refined his original conclusions, Rogers's work has formed the basis of much of the culture history of the region. In the Coachella Valley, extensive surveys were carried out by the Archaeological Survey Association (ASA) of southern California in the 1950s (McCown et al. 2001). Though not well reported, many sites recorded by the ASA have since been destroyed by modern development.

Much of the research over the last 35 years has focused on the ancient shorelines of Lake Cahuilla, which formed on numerous occasions during the last 15,000 years (and before [Weide 1974a]). Some of this research has focused on the lake itself, and a number of studies have helped to refine the timing of the cycles of inundation and desiccation, particularly over the last 2,000 years (Waters 1983; Weide 1974a; Wilke 1978). Whereas earlier models had suggested a single, stable lake level spanning several centuries, the lake is now understood to have fluctuated considerably, and at least three or four cycles of inundation and desiccation over the last two millennia have been documented (Laylander 1997).

Human adaptation to these cycles of lake infilling and desiccation is of great interest, and a model of changing settlement and subsistence was proposed by Wilke (1978:103–107), based primarily on ethnographic analogy and paleofecal data from several sites. When the lake was present, people would have had a stable economic base capable of supporting a substantial population, permanent lakeshore villages, and seasonal camps to exploit terrestrial resources. After the lake disappeared, Wilke (1978) argued, desert conditions dominated, but the settlement/subsistence pattern remained basically the same, aside from being centered on permanent springs rather than the lake. The economic focus would have shifted from aquatic resources to terrestrial ones, similar to the terrestrial subsistence patterns documented during the ethnohistoric period. That would have resulted in increased utilization of the surrounding mountains to the west (see O'Connell et al. 1974; Wilke 1978:113), perhaps with people moving to the lower Colorado River to the southeast, a region densely occupied during the early historical period.

Excavations at the La Quinta site (CA-RIV-1179; Sutton 1993; Sutton and Wilke 1988) along the northwestern shoreline of Lake Cahuilla revealed a seasonal pattern of resource use that did not support the Wilke model. A further reanalysis of the paleofecal data from La Quinta and other sites (Sutton 1998) suggested that La Quinta was not occupied throughout the year. A study of faunal bones, macrobotanical remains, and other sensitive seasonal indicators suggested that the sites either were not occupied during the winter months or were only sporadically occupied. Sutton (1998) proposed that the lakeshore would have been intensively occupied only during the spring and summer months. During the winter, groups would have moved to other areas that, to date, have not been identified archaeologically.

Questions about the impact of Lake Cahuilla on settlement and subsistence and on the occupation of the Coachella Valley remain important research topics. It appears possible that the last major stand of Lake Cahuilla could have served as a major attractant to populations in and near the Peninsular Ranges of southern California and, as first suggested by Cochran (1965:87; see also Laylander 2007), may be related to the eastward movement of the Takic, specifically the ethnogenesis of the Desert Cahuilla as they moved eastward from the southern California coastal areas and western basins into the northern Coachella Valley.

There has been a relative paucity of archaeological studies focusing on desert sites located away from the shoreline of Lake Cahuilla. The most-studied areas of the northern part of the Coachella Valley are in Tahquitz Canyon (Bean et al. 1995; Schaefer 2002; Wilke et al. 1975:45–73) and in Andreas and Murray Canyons (Cultural Systems Research 1983), near present-day Palm Springs. Excavations at the sites in these areas recorded immense cultural deposits containing a variety of feature and artifact types. Feature types included house pits, hearths, storage areas, human cremations, and ritual caches and offerings. Most of the occupations at these sites dated to the Late Prehistoric and ethnohistorical periods.

Analysis of artifacts from these sites has suggested that the inhabitants exploited a variety of resource areas, such as springs and oases, alpine and mountain environments, and the desert. Numerous bedrock mortars and other milling features indicate an increasing use of seeds and nuts (including acorns), in contrast to earlier periods. Likewise, the presence of faunal remains from animals that live at higher elevations, such as deer (*Odocoileus* sp.) and mountain sheep, indicates the importance of montane and other resources.

Research Design

Prehistoric Research Themes

Prehistoric research themes and questions that apply to broad areas of the project area are discussed in the following sections.

Chronology

The Coachella Valley has been home to prehistoric aboriginal populations for at least 2,500 years (Love and Dahdul 2002; Schaefer and Laylander 2007). In contrast to other neighboring regions, however, the antiquity of prehistoric occupations in the Colorado Desert is poorly understood. Schaefer (1994) defined the Paleoindian, Archaic, and Late Prehistoric periods for the region, and the Late Archaic period was discussed by Love and Dahdul (2002) and Schaefer and Laylander (2007). The Late Archaic period (ca. 3000–1300 B.P.) record appears meager and is known from only a handful of sites, some of which appear to be associated with a stand (or stands) of Lake Cahuilla (Love and Dahdul 2002:77). In general, occupation during the Late Archaic period appears to have been sparse, preceramic, and perhaps associated with stands of Lake Cahuilla.

Lake Cahuilla (also known as Lake LeConte or the Blake Sea) played a major role in the prehistory of the Colorado Desert (see Laylander 1997, 2006; Rogers 1945; Schaefer and Laylander 2007; Sutton 1993, 1998; Waters 1983; Weide 1974a, 1974b; Wilke 1978). This lake formed periodically when the Colorado River broke its channel and flowed into the Salton Basin (Coachella and Imperial Valleys), forming a body of water that extended some 184 km (114.3 miles) long, 54 km (86.9 miles) wide, and 96 m (315 feet) deep (Schaefer 1994:67). Once full, Lake Cahuilla overflowed into the Gulf of California along the Hardy River. When the Colorado River regained its original course, the lake evaporated and disappeared. Schaefer and Laylander (2007:250) estimated that it would have taken about 20 years for the lake to fill and about 60 years for it to evaporate (see also Wilke 1978:109).

At least six major lake cycles are known to have occurred within the last 2,500 years (see Laylander 1997; Schaefer and Laylander 2007:250; Waters 1983; Wilke 1978:58): one in the Late Archaic period, sometime between ca. 2500 and 2000 B.P.; a second between ca. 1300 and 1100 B.P.; a third between ca. 1070 and 850 B.P.; a fourth between ca. 750 and 640 B.P.; a fifth between ca. 550 and 480 B.P.; and a sixth in historical-period times, between ca. 400 and 300 B.P. (Laylander 1997:68).

The apparent absence of any major occupation around Lake Cahuilla during either the ca. 2500–2000 B.P. cycle or the ca. 1300–1100 B.P. cycle is puzzling. Perhaps fishing technology of sufficient scope or effectiveness had not yet been adopted. Such technology was presumably obtained from River Yumans (see White and Roth 2009), but Patayan influence was not very important in the northern Coachella Valley before ca. 1000 B.P. Perhaps the cultural system used by Late Archaic period groups in the northern Coachella Valley was not flexible enough to adapt to the change. Whatever the case, the topic is worth exploring in future research.

Research Questions

Among the questions about chronology to be addressed are the following:

1. What information regarding the initial occupation of the area can be obtained from sites within the project area?
2. What is the full temporal extent of the occupation of sites?
3. Did use of the sites intensify over time?
4. When did pottery appear at sites within the project area?
5. When were the sites abandoned?
6. What is the relationship between sites and the presence or absence of Lake Cahuilla?

Data Requirements

The types of data needed to establish a chronological framework for any site include intact midden deposits with hearths, roasting pits, or other features that can be radiocarbon dated or temporally sensitive artifacts with well-established age ranges. Obsidian artifacts could yield relative chronological information through the measurement of hydration rinds, although variables affecting rates of hydration are as yet imperfectly understood.

Trade and Social Interaction

The study of trade and exchange networks looks at how humans acquire different technologies and ideas, in terms of both material goods and more-abstract notions, such as ideology. In some cases, the identification of trade goods is straightforward, such as the presence of marine shells at inland sites hundreds of miles from the coast. In other cases, sourcing studies, which allow researchers to see where materials came from, are necessary. For widely traded items, it can be difficult to determine whether their appearance in certain areas was the result of long-distance contact with the groups who originally acquired or produced them or the items were traded "down the line," passing through several groups before arriving at their final destinations. In these cases, multiple lines of evidence from a variety of material or artifact classes can help show patterns in the distribution of certain goods. Resolution of these issues is also dependent on sufficient data sets from excavated contexts at several different sites along trade routes.

The Coachella Valley and Colorado Desert area borders the territories of several known prehistoric cultural groups, including the Gabrielino to the west, the Serrano to the north, and the Quechan and Chemehuevi to the east and south. Evidence of trade with these groups has been documented at sites in the valley (Bean 1972:68–70; Bean et al. 1995). The Cahuilla were known to have extensive trail systems in the valley (Bean 1972:74), as well as trails connecting the valley to other regions, such as the Coco-Maricopa Trail (Bean 1972; Bean et al. 1995).

The location of the project area just south of the Little San Bernardino Mountains puts it close to the territory of the Mountain Serrano, a neighboring ethnic group. The Cahuilla and Serrano shared a number of cultural traits and regularly interacted (Bean 1972:69; Strong 1929). Sources have shown that during the historical period, they intermarried and engaged in complex ceremonial relationships, and Strong (1929) has argued that social interaction between neighboring tribes or clans was based more on their locations relative to one another than tribal or ethnic identification. Thus, it seems likely that Cahuilla living within the project area would have traded for deer products, acorns, and other montane resources found in Serrano territory.

There are potentially several other sources of information relating to trade and exchange that are identifiable archaeologically, including lithic artifacts, shell, and pottery. The exchange of lithic materials between the Colorado Desert and other areas has been documented at several sites (Bean et al. 1995; Grenda 1998; McFarland 2000; Pigniolo 1995). The two major lithic sources are Obsidian Butte, located on the southern shore of the present-day Salton Sea, and the Wonderstone West Rainbow Rock Locality (CA-IMP-6300), located on the western shore of Lake Cahuilla. Other sources and locations include San Felipe obsidian from northern Baja California, steatite from the California coast, and argillite from central Arizona.

Likewise, marine shells have been found at Coachella Valley sites, and the area may have functioned as a trade route between the Gulf of California and the southern California coast (Ahlstrom 2000; Rosen 1995). Ceramic-figurine types from both the Great Basin and the lower Colorado River were found at sites in Tahquitz Canyon (Bean et al. 1995), Mission Creek (Altschul 1986), and Yucaipa (Grenda 1998), suggesting that the inhabitants were participants in larger areas of interaction in the southwestern United States.

Research Questions

Questions pertaining to trade and interaction include the following:

1. What evidence is there that prehistoric and protohistoric peoples occupying sites within the project area engaged in trade with areas of coastal California, the U.S. Southwest, and other neighboring culture regions?
2. What types of materials were traded prehistorically? Were finished goods or raw materials more likely to be traded? How did that change through time?
3. Were European goods used at the sites? When did they first appear at the sites?
4. Is there evidence of trade and ceremonial interaction between the Cahuilla living in the region and neighboring Mountain Serrano groups?

Data Requirements

The basic types of data required to address questions regarding trade and technology include lithic artifacts, pottery, shell ornaments, and other elements of material culture that are easily transportable. Food items, such as meat, shellfish, acorns, and pinyon nuts, may also have been important resources that were traded. Trade can be inferred from the distribution of nonlocal materials, such as marine shell and certain types of obsidian. Analyses of trade and exchange also require representative samples from other areas that can be used to show what materials were traded out of the study area. Sourcing studies and other chemical analyses would be required during further phases of research, in order to determine the origins of marine shell, obsidian, and pottery. Fortunately, the Obsidian Butte source has been well studied, and its specific mineral signatures can be easily recognized in sourcing studies (Hughes 1986). Pottery can also contain abundant information about exchange and interaction. The analysis of paste inclusions (small pieces of temper added to the clay prior to firing) can provide insights into the refinement of paste recipes, as well as the identification of possible traded or exotic goods.

Changes in tool manufacture or design can help us to identify changing social relations among occupants of a site or change through time in social connections among different social groups. The appearance of novel manufacturing techniques, such as changes in projectile point or pottery styles, can signal the incorporation of new ideas brought in from other areas.

Settlement and Subsistence

Issues of settlement and subsistence form the backbone of many archaeological investigations. These lines of inquiry often focus on the most basic types of questions archaeologists can ask, such as: Who lived here? How was the use of space organized at the site level? What did they eat? What time of the year were they here? Although these questions may be simple, to answer them, researchers must draw on a number of disparate data sets, such as chronology, cultural affiliation, and technology. Settlement-pattern studies investigate the ways in which people organized themselves in relation to their surroundings. That includes not only environmental factors, such as access to food, water, and other important resources, but also cultural factors, such as sacred landscapes and other elements of an interactive natural world. Subsistence studies investigate how people acquired food and other necessities and how they organized themselves to meet those daily needs. Together, settlement-pattern and subsistence studies help to form a backdrop of basic archaeological knowledge that researchers can draw from to answer broader questions about cultural change within particular study areas.

A number of ideas have been proposed regarding the human adaptation to Lake Cahuilla. Aschman (1959:45), in reference to the final desiccation of Lake Cahuilla, thought that people could have moved "to the Colorado River, where flood farming was practiced, or to the more humid lands west of the mountains where acorns were the major food source." Aschman (1959:45) implied that any people moving to the Colorado River would have been met by a very hostile existing population and thought it "probable that the lake-shore dwellers around the former Blake Sea . . . [moved] to the coastal lands of their respective linguistic congeners," Takic in the north and Yuman in the south. It would have taken some time for the newly dry lakebed to establish a biotic community, and Wilke and Lawton (1975) suggested that the lakebed would have been basically uninhabitable until the establishment of mesquite (*Prosopis* spp.) stands.

Weide (1974b:106) proposed a flexible settlement-and-subsistence model for Lake Cahuilla "similar to [that] of Great Basin people to the north who exploited similarly fluctuating resource bases." In the model, the lake was only part of the system, and small, mobile populations without permanent settlements moved to the lake to use the lacustrine resources as part of their overall seasonal round. When the lake desiccated, people would have simply readjusted their system back to terrestrial resources. Because of the frequent fluctuation of the lake, populations would not have significantly increased; thus, no explanation of where large populations would have gone when Lake Cahuilla desiccated would be required (Weide 1974b; see also Laylander 2006).

The Weide (1974b) model would have two archaeological expressions: a high-stand expression and a recessional expression, each reflecting a seasonal round practiced by a residential group of both sexes and all ages. The high-stand expression would consist of upland, desert, and lakeshore sites linked to each other in some fashion. The recessional expression would include the same site types, but the lakeshore and some desert sites would be located below the maximum high-stand elevation. During times when the lake effectively disappeared, lakeshore sites would be absent. In the model, no "permanent" settlements would be present, although it is possible that some small special-purpose sites used by specialized task groups could have been used.

In contrast, Wilke (1978) proposed that, for the northern Coachella Valley at least, the settlement pattern consisted of generally permanent lakeshore villages coupled with a series of special-use sites in various upland ecozones, in order to exploit terrestrial resources. This generally sedentary collector-like system would have replaced the mobile forager-like system of the Late Archaic period. Presumably, the presence of the lake would have provided a large and stable economic base (the lacustrine resources) capable of supporting substantial populations living in permanent lakeshore villages.

A third settlement model was proposed by Sutton (1993, 1998, 2011) in which groups would have adopted a flexible settlement system so as to retain a focus on lacustrine resources even during fluctuations in lake levels. In that case, as the lake receded, the settlement system may have been adjusted to adapt to the changing geographic locations of the lacustrine ecozones. In such a system, the lakeshore would be expected to have been permanently occupied, and some combination of principal habitation and special-use sites would have been utilized with varying duration and intensity. As a result, dependence on specific resources would have fluctuated; lacustrine resources would have remained generally dominant, but terrestrial resources would have varies in importance. This fluctuating resource dependency could be seen as variations in diet breadth and/or in the use of various tactics within the overall strategic inventory (Sutton 2000).

Such a settlement system could have taken one of at least two different forms (see Sutton 2011). The first possibility is that principal settlements could have been moved to progressively lower elevations, to remain close to the receding shoreline and lake resources—e.g., fish and marsh plants. Wilke (1978:9) suggested that the increasing salinity of the receding lake did not become toxic until the lake was nearly gone—e.g., the current Salton Sea continues to support plants and fish. As the lake levels again rose, the principal settlements would have been relocated to progressively higher elevations, perhaps even to their old locations. The archaeological signature would be a series of major, but relatively short-lived, settlements spread from the high stand down to the (as-yet-undetermined) low-stand elevation. In essence, then, the association between settlements and the lakeshore would have remained basically the same during high and low lakes levels, in that principal settlements would have been located on the shoreline.

In that scenario, the principal settlements might look like relatively large temporary camps. Even if the sites were occupied for only short periods when water levels were fluctuating, they should still contain the full range of behaviors associated with high-stand principal settlements, specifically evidence of "permanent" habitation (e.g., structures, ecofacts from all seasons, or diversity of artifact types), ceremonial cycles (e.g., mourning ceremonies), and cremations. Special-use sites in upland, desert, and lakeshore ecozones would have continued to be used, although the distance to many such sites from the principal lakeshore settlements would have increased as the lake retreated. However, as the lake retreated, areas formerly underwater would have become "desert," and special-use sites would have been established in areas below the high-stand shoreline, in order to exploit the "desert" resources. In addition, a series of lakeshore special-use sites would have been established to follow the retreating lake.

The second possibility is that the principal settlements on the high-stand shoreline would not have been moved as lake levels fluctuated. As the water receded, the ecozone around the principal settlements would have become "desert" rather than lacustrine, and local resource procurement would then have focused on the exploitation of desert resources. As before, upland, desert, and lakeshore special-use sites would have continued to be used, and desert and lakeshore special-use sites would have been established below the high stand and located at variable distances from principal settlements, depending on the lake level at the time. They would have been occupied by relatively small task groups for comparatively brief periods of time, and the resources obtained would have been processed before being taken back to the principal settlements. Lakeshore special-use sites would contain considerable evidence of fish or marsh-plant procurement and processing but little evidence of habitation.

As a result, the principal settlements would contain "less" evidence of lacustrine-resource procurement and processing and perhaps "more" evidence of terrestrial-resource procurement and processing. In addition, one would expect changes in tool kits, processing facilities, and ecofactual remains at all of the lake-basin sites. Perhaps the stone fish traps known in some portions of the northern Coachella Valley and elsewhere in the Salton Basin (Schaefer and Laylander 2007; Treganza 1945; White and Roth 2009; Wilke 1980; Wilke and Lawton 1975) represent such lakeshore special-use sites. Special-use sites located below the high stand would have been inundated as the lake rose again and were probably covered with sediments, and many would now be very difficult to locate.

Research Questions

Questions pertaining to subsistence and settlement patterns include the following:

1. How well does site patterning conform to the settlement models posed for prehistoric societies in the area?
2. What evidence is there of habitation? Were sites occupied year-round, or were they seasonal camps? How many people were living at these sites, and how did population size change through time?
3. What other activities were conducted at the sites?
4. What types of food were consumed at the sites? What environments were people exploiting to acquire food? How important were montane resources?
5. What locally available materials were utilized?
6. Did the exploitation of certain resources change through time, and if so, how?
7. Were domesticated plants used at the sites? If so, which plants were used, and when did they appear at the sites?

Data Requirements

Studies of settlement patterns require not only intensively investigated individual sites but also enough regional comparative data to construct a complete model of site types. Given the extent of the research at Late Prehistoric period sites in the Coachella Valley, there should be sufficient comparative data to test the various models of prehistoric settlement patterns for the region.

Features and artifacts, as well as faunal and botanical remains, will give clues to the types of activities that occurred at the sites, as well as the times of the year the activities took place. Comparisons between the types of activities at the sites in the study area and activities at previously studied sites in the vicinity will be useful. These comparisons will also help determine whether the sites within the project area represent the full range of activities documented in the surrounding region or a particular subset of activities.

Historical-Period Research Themes

Historical-period research themes and questions that apply to broad areas of the project area are discussed in the following sections. The major historical-period research themes focus on exploration, transportation, communication, and settlement.

Exploration, Transportation, and Communication

The theme of exploration, transportation, and communication is a collective topic encompassing the movement of people and information into and through a region. The project area has long served as a travel corridor for aboriginal peoples, as well as for missionaries, explorers, and others. Regional transportation includes roads, highways, and railroads. Communication sites include telegraph and telephone lines and alignments carrying power and other utility infrastructure. This theme also includes aspects of land use related to recreational activities, such as automobile tourism, hiking, camping, and hunting.

Historians have prepared numerous discussions on early explorations through southern California. Likely routes have been identified, but the nature of those incursions left few tangible archaeological remnants, and no camps or other sites related to early exploration have been identified within the project area. Exploratory routes often followed Native American trade routes, and explorers were frequently led by Native Americans or directed to previously established trails. Many of those trails ultimately became major transportation routes incorporating ancient river crossings and routes through mountain passes.

Transportation improvements were among the most significant agents of change in southern California during the late nineteenth and early twentieth centuries, especially in communities that were relatively isolated from main population hubs. In 1900, most southern Californians lived and worked within a small radius and traveled on foot, on horseback, or by horse-drawn wagons or buggies. After the turn of the twentieth century, however, automobile use rapidly increased, and residents lobbied for the development and maintenance of improved roads capable of supporting the new form of transportation. Southern California railroad development had created a radiating pattern of settlement characterized by dispersed population centers, and the automobile provided the maximum freedom of mobility that was ideal in such a landscape. The ability to travel long distances between cities connected the region and the nation in unprecedented ways. Regional roads created a complex market web and supply network linking urban centers with outlying farms, ranches, and mines.

Communication networks, including telegraph and telephone lines, as well as utility-transmission lines, are closely related to transportation routes, in large part because they typically share common linear alignments and provide linkages between nodes of settlement.

Research Questions

Research questions relating to exploration, transportation, and communication include the following:

1. Does any evidence of early exploratory routes remain within the project area?
2. What types of historical-period transportation routes are present within the project area?
3. What are the origin and destination points of the routes? Were the routes changed or realigned over time?
4. What type of traffic did the routes carry (pedestrian, wagon, motorized vehicle, or railroad)? Were the routes expedient or engineered?
5. During what period did the routes serve the region?

6. What social, political, economic, and industrial developments were associated with the transportation routes?
7. What is the nature of the communication infrastructure within the project area?
8. When was the communication infrastructure installed, and how was it modified over time?
9. What social, political, economic, and industrial developments were associated with the local communication infrastructure?

Data Requirements

Information to address research questions related to exploration, transportation, and communication include both physical and documentary sources. Sufficient intact portions of features and sites would be required to make adequate assessments.

As noted above, the earliest historical-period activity in the region of the project area consisted of passages through the region by Spanish missionaries and soldiers and early American explorers. These were transient land uses, and the only archaeological resources associated with them might be the remains of trailside overnight camps, none of which has been documented in the area to date. Because diaries of many of these early travelers include mention that they stopped at Native American villages along the way, evidence of their passage could be in the form of historical-period artifacts found at archaeological sites of Native American villages and camps.

Understanding and evaluating transportation routes and communication infrastructure can prove challenging and are dependent on information about not only the linear alignments themselves but also points of origin and destination, as well as the complex historical narrative regarding the social, political, economic, and industrial development of the region. The role of a segment as part of a much larger, linear resource must be recognized and assessed. Evaluation of transportation routes and communication infrastructure should include assessment of information about their setting and construction, as well as consultation of archival information, which can help provide data about the importance of the sites in regional history and their potential to yield chronological, technical, and functional information.

Transportation sites could include trails; wagon, stage, and automobile roads; highways; and railroads. Communication sites include telegraph and telephone lines and alignments carrying power and other utility infrastructure. A valuable compilation of historical information concerning transportation routes in the California deserts has been prepared by Warren and Roske (1981). Regional railroad history has been compiled by Myrick (1963).

Settlement

The permanent settlement of the region by homesteaders was an important aspect of the development of the region. Under the Homestead Act of 1862, the U.S. Congress opened millions of acres of public domain to anyone that could pay the $10.00 registration fee and live on the land for 5 years (which was shortened to 3 years in 1912). Natural springs and other scarce water sources were the early focal points of homesteading in the Coachella Valley. The European settlement of the valley intensified after the completion of the Southern Pacific Railroad in 1877 (Heath 1945). In the 1880s, the Desert Land Act opened much of the public land in the area to private development.

Research Questions

Research questions related to historical-period settlement systems within the project area include the following:

1. What was the nature of land occupation or ownership in the survey area, and what period of homesteading or other settlement is represented by the sites?
2. Can the relative success of a homestead be inferred from material remains?

3. Did site occupants subsist on the products of local ranching/farming, or did wage labor supplement their income? Where did site occupants obtain goods and supplies? What local, regional, national, and international spheres were included in the economic arrangement of that operation?
4. What was the demographic makeup of the site occupants? Did site demography change over time?

Data Requirements

These questions can be addressed with both documentary and archaeological data. Land applications and patents made to the U.S. General Land Office (GLO; now the USDI BLM) as well as census documents can provide information on the identities and origins of homesteaders. Tax-assessors' records provide data on land values, transactions, and improvements. Together, these sources can reveal the chronology of residential and agricultural land use and can provide important parcel-specific associations between resources and individuals.

Data to address questions of regional interaction can be drawn from a wide variety of materials. Residential trash deposits can provide information about the range of sources from which food and household materials (such as pottery) were acquired. Historical records, such as tax records, can also provide important information about the extent and sources of external funding.

Other settlement-related questions can be answered only through information obtained from the layout of properties, analysis of the architectural remains, and the contents of refuse scatters and trash dumps. For instance, architectural remains can reveal whether buildings were constructed by hand, whether they were built with purchased or scavenged materials, and whether they were made according to plan or reflect ongoing construction over time. Architectural remains—particularly residences in relation to industrial structures, other outbuildings, and land dividers (such as fences)—can indicate the organization of agricultural or stock-raising activities. The size and distribution of trash deposits, as well as the diagnostic items within them, can indicate periods of change, such as abandonment or refurbishment.

To answer these and other questions, we need to find undisturbed historical-period deposits in their original contexts at sites containing functionally and temporally diagnostic artifacts. Analysis of the material culture can then supplement and clarify the written record.

Methods

Records-Search and Literature-Review Methods

Records searches and other archival research were conducted at the California Historical Resources Information System Eastern Information Center (EIC), Department of Anthropology, University of California, Riverside, on February 1, 2021. The goal of the records search was to review any previous archaeological projects that may have been conducted within or around the project area, in order to identify previously recorded archaeological resources located on the property. Although the County requires that the records search include a minimum of a 1-mile radius around the project area, in light of the fact that the EIC is currently closed because of the COVID-19 pandemic and only EIC staff are permitted to conduct records searches, resulting in significant delays, the County Archaeologist made a temporary allowance for a smaller records-search radius. Therefore, the records search looked at all reports from archaeological work executed within a $^{1}/_{2}$-mile radius of the project area. Also examined were USGS topographic maps held by the EIC that contain the locations of all previously conducted cultural resources surveys and known archaeological sites. The catalogs of sites listed in the National Register of Historic Places and of California Historical Landmarks were examined, as well.

Additional archival research included reviewing primary and secondary sources for information pertinent to historical-period activities in the project area. Historical maps were consulted for information regarding specific historical-period land use in and around the project area. The online USGS collection of Historical Topographic Maps and online USDI BLM/GLO records were consulted.

Survey Methods

A pedestrian survey of the project area was conducted on February 12, 2021. The survey was conducted by a single SRI field archaeologist, Alyssa Canoff. Because the project area covered an approximately 40-foot- (12-m-) diameter corridor, it could be adequately and intensively surveyed by walking the length of the corridor in two 5-m-interval transects. The progress of the survey was monitored using Trimble Geo XT/XH Global Positioning System units and high-resolution aerial photographs.

Results

Records-Search Results

The results of the records search indicated that 19 previous survey projects had been conducted within the records-search area (Table 1; Figure 3). Of those, 2 surveys (RI-01189 and RI-02282) covered the land within the project area. Although the entirety of the records-search area falls within 8 regional overviews, 11 surveys had examined approximately 60 percent of the records-search area. Two projects (RI-00714 and RI-00715) barely intersected the southeastern edge of the records-search area. No previously recorded resources had been identified within the project area or the 1/2-mile records-search buffer. Note that the outlines of five reports (RI-00714, RI-01189, RI-06712, RI-07484, and RI-09955) are represented as bold lines in Figure 3. These five reports are represented in this fashion to avoid confusion arising from overlapping report shapes. The interior of each of these five shapes is also included in the area represented in the report.

Table 1. Previously Conducted Cultural Resource Studies within 1/2 Mile of the Project Area

Report No.	Citation	Location
RI-00002	Rogers 1953	overview
RI-00161	Greenwood 1975	overview
RI-00714	Desautels 1979	records-search buffer area
RI-00715	Keller 1998	records-search buffer area
RI-00988	Barker and Schlanger 1974	overview
RI-00989	Wildesen 1974	overview
RI-00990	Barker 1974	overview
RI-01189	Tadlock and Tadlock 1978	project area
RI-01955	Heller et al. 1977	overview
RI-02282	Padon 1987	project area
RI-03504	Chace 1994	records-search buffer area
RI-03643	Mason 1992	records-search buffer area
RI-04240	Love et al. 1999	records-search buffer area
RI-04762	Barker and Huston 1990	overview
RI-05877	Love et al. 2000	overview
RI-06712	Brock 2006	records-search buffer area
RI-07484	Gust 2007	records-search buffer area
RI-08102	Perry 2000	records-search buffer area
RI-09955	Brian F. Smith and Associates 2017	records-search buffer area

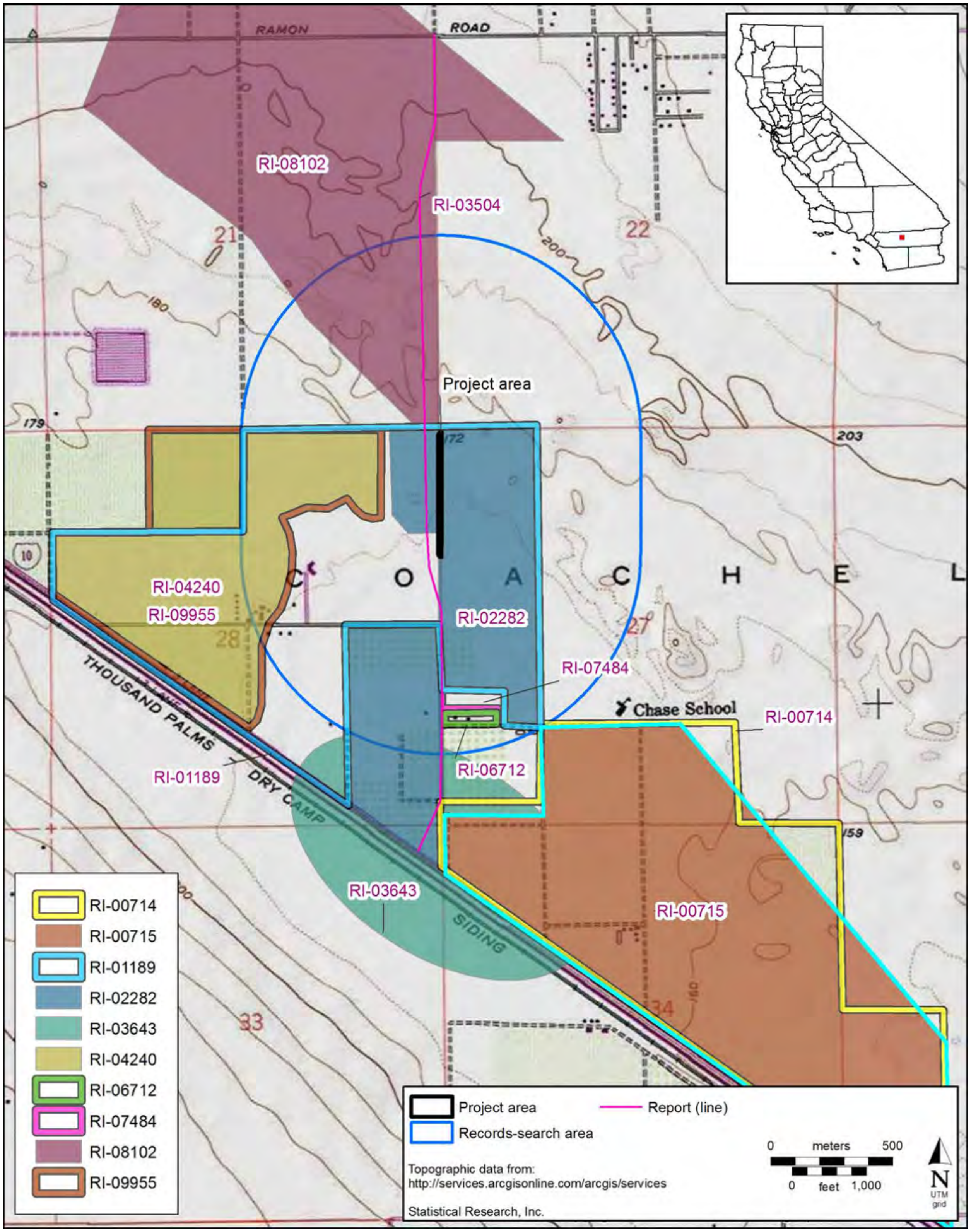

Figure 3. Map showing the locations of previously conducted archaeological projects within 1/2 mile of the project area.

Previous Archaeological Research in the Project Area

The entirety of the project area was included in at least two previously conducted archaeological surveys (RI-01189 and RI-02282) as well as several regional overviews, but no resources were identified within the project area (see Table 1). The 1856 GLO plat map for Township 4 South, Range 6 East, does not show any cultural features in Sections 27 and 28, nor do the 1904 Indio, California, 60-minute; the 1941 and 1944 Edom, California, 15-minute; or the 1958 Myoma 7.5-minute USGS topographic quadrangle maps.

Native American Heritage Commission Sacred Lands File Search

Part of the records search and literature review also involved contacting the Native American Heritage Commission (NAHC) for a list of traditional-use areas or sacred sites within the project area and a list of specific Native American groups or individuals who could provide additional information regarding cultural resources within the project area. To avoid potential delays due to COVID-19, the County provided SRI with the results of their own sacred-lands-file search. This NAHC sacred-lands-file search did not indicate the presence of Native American traditional cultural places within the project area. However, the NAHC provided a list of 12 contacts that could provide additional information regarding cultural resources within the project area (Confidential Appendix B), and SRI began informal discussions with the contacts provided by the NAHC.

Subsequently, SRI sent a letter to all 12 contacts on February 1, 2021, describing the proposed project and requesting any information they could provide (see Confidential Appendix B). The letters arrived between February 4 and 8, 2021. U.S. Postal Service tracking data indicated that the letter to the Santa Rosa Band of Cahuilla Indians was not picked up from the post office, and there was no response to a subsequent email sent on February 9, 2021. On February 11, 2021, the Agua Caliente Band of Cahuilla Indians (ACBCI) responded that they would like a copy of the records-search results, along with associated survey reports and site records; copies of any report and site records generated in connection with this project; the presence of an ACBCI monitor during ground disturbance; and an informational meeting with the developer, the lead agency, and an archaeologist. ACBCI will coordinate with SRI first. On February 11, 2021, the Cabazon Band of Mission Indians responded that they has no specific archival information on the project area that would indicate sacred/religious or other Native American cultural importance. On February 8, 2021, the Quechan Tribe of the Fort Yuma Reservation indicated that they will defer to local Tribes. SRI has not had any responses from any other Tribes at the time of this report.

Geoarchaeological Review

The geoarchaeological review involved accessing the Natural Resources Conservation Service to determine the kinds of soils that have been mapped in the project area and to assess the probability of buried archaeological sites in the project area. Soils maps show that the dominant soil series in the project area is the Myoma Series, which is classified as mixed, hyperthermic Typic Torripsamments in the U.S. Department of Agriculture (USDA) taxonomic system. The soils in the Myoma Series are coded as “MaB” (Myoma fine sand, 0–5 percent slopes) and “MaD” (Myoma fine sand, 5–15 percent slopes; Appendix C). Myoma soils are present on nearly level to rolling terrain, with hummocky microrelief where unprotected, and at elevations of about 60 m (200 feet) below sea level to 550 m (1,800 feet) above sea level. The soil formed in sand that was blown in from recent alluvium. The Myoma Series makes up the entirety of the project area.

Myoma soil is very weakly developed and is classified in the Entisols soil order in the USDA taxonomy. This soil consists only of subhorizons of the C horizon (see the pedon description in Appendix C) that lack a recognizable A horizon. The youthful age of this series is clearly indicated by the lack of both A and B horizons. Myoma soil consists of a sand sheet of aeolian sand redeposited (that is, blown in) from recent alluvium (that is, sand deposited by streams). Because Myoma soil is young and has unstable geomorphic surfaces, there is potential for archaeological sites to be buried in it, the probability of which is regarded as moderate to moderately high. If a large drainage or spring were located nearby, these soils within the project area would be considered highly sensitive for cultural resources.

Records-Search Summary

The entirety of the project area had been previously surveyed, but no prehistoric or historical-period resources are known within the project area. No resources had been previously identified within the ½-mile records-search buffer surrounding the project area.

A geoarchaeological study of the project area showed that the sediments that overlie the project area are quite deep in some places. Because the soils in the project area are relatively young and their geomorphic surfaces are unstable, there is a moderate potential for buried cultural resources.

Survey Results

SRI surveyed the entirety of the 1,600-foot- (488-m-) long project area. A series of off-highway vehicle trails and graded roads cross the landscape and were located along the project area, resulting in much of the project area's exhibiting some degree of disturbance (Figures 4–6). Part of the southern end of the project area overlaps with Cook Street and is paved with asphalt. The project area consists of sandy soils with some desert vegetation. At the time of survey, the ground visibility was excellent (75 percent or greater) in all portions of the project area that have not been paved. No prehistoric or historical-period artifacts or features were recorded during the survey. Modern refuse was visible on the ground surface throughout the project area.

Management Recommendations

SRI did not identify any prehistoric or historical-period artifacts or features within the project area. Much of the surface of the project area has been affected by off-highway vehicle traffic as well as road-surface grading. Although the surface exhibited general disturbance from vehicle traffic, geoarchaeological studies of the project area indicated that it has a moderate sensitivity for buried cultural resources. So, cultural resources could be present just under the ground surface. SRI therefore recommends that a qualified archaeological monitor be present during ground-disturbing activities related to the project. Additionally, as requested by the Tribe, the ACBCI should be contacted prior to any ground disturbance, to ensure that a Tribal monitor also is present.

Unanticipated Discoveries

If prehistoric or historical-period artifacts or features are found during the course of project activities, work near the discovery should cease, and a qualified archaeologist should be brought in to examine the finds. Additional fieldwork may be required to evaluate the resources for eligibility for listing in the California Register of Historical Resources.

Figure 4. Overview photograph of the northern end of the project area, view to the south.

Figure 5. Overview photograph of the southern end of the project area, view to the north.

Figure 6. Overview photograph of the central portion of the project area, showing the ground visibility, view to the north.

Human Remains

If human remains are identified during construction, all construction near the find must cease immediately, and the area must be secured. The office of the Riverside County Coroner must be contacted immediately, in accordance with California *Health and Safety Code* (HSC) 7050.5(b). If the County Coroner determines that the remains are those of a Native American individual, HSC 7050.5(c) requires that the County Coroner contact the NAHC by telephone within 24 hours. The NAHC will select the Most Likely Descendant and will coordinate with that individual regarding the treatment and final disposition (repatriation) of the human remains, according to the provisions of PRC 5097.98 and any other legal requirements. Human remains will be treated with proper dignity and respect.

Certification

CERTIFICATION: I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: 2/19/2021

Signed: ____________________

Printed Name: Patrick B. Stanton

County Registration No.: ____________________

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APPENDIX A

Personnel Qualifications

Patrick B. Stanton

Education

- M.A., Anthropology, Wichita State University, 2003
- B.A., Anthropology, University of Tennessee–Knoxville, 2000

Qualifications

Patrick B. Stanton is Registered Professional Archaeologist with over a decade of experience working in southern and central California as well as Arizona, Iowa, Kansas, Texas, and Sonora, Mexico. As a project director, Mr. Stanton has directed survey, monitoring, testing, and data recovery excavations for multiple archaeological field projects involving prehistoric and historical-period resources for a variety of private firms and public agencies, including the U.S. Department of the Interior Bureau of Land Management (BLM) and the U.S. Department of Agriculture Forest Service. He has conducted numerous Heritage Records Searches at the San Bernardino National Forest Headquarters as well as records searches at the BLM Ridgecrest Field Office and at California Historical Resources Information System (CHRIS) Information Centers in San Bernardino, Riverside, and Los Angeles Counties. Mr. Stanton is a trained human osteologist and has analyzed and supervised the analysis of hundreds of human burials from historical-period, prehistoric, and modern/forensic settings. He meets the U.S. Secretary of the Interior's Professional Qualifications Standards for Archaeology and is familiar with evaluation criteria of the California Environmental Quality Act, the National Environmental Policy Act, and Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended. His major California publications include research reports for projects in San Bernardino, Riverside, and Los Angeles Counties; the San Bernardino Mountains; the Ballona Wetlands; and the Mojave and Colorado Deserts.

Professional Experience

- 2019–present, Principal Investigator and Assistant Office Director, Statistical Research, Inc. (SRI), Redlands, California
- 2017–2019, Senior Project Director, SRI, Redlands, California
- 2010–2017, Project Director, SRI, Redlands, California
- 2010, Archaeologist, University of Iowa, Office of the State Archaeologist, Dubuque, Iowa
- 2003–present, Osteologist, SRI, Redlands, California
- 2003–2009, Crew Chief, SRI, Redlands, California
- 2003, Archaeological Field Technician, SRI, Redlands, California

Selected Projects

- Principal Investigator, Entrada Office Tower Project (monitoring and buried-sites testing in support of construction of an office building), Culver City, California, for Lincoln Property Company, 2019–present
- Principal Investigator, Marine Corps Air Ground Combat Center (MCAGCC) Conditions Assessment, Site Monitoring, and Effect Treatment (CASMET) Site Assessments (site-condition assessment for approximately 520 archaeological sites), for Naval Facilities Engineering Command (NAVFAC) Southwest, 2019–present
- Principal Investigator, MCAGCC 27,000-acre Survey (cultural resources inventory of over 27,000 acres), for NAVFAC Southwest, 2019–present
- Principal Investigator, Salt Creek Trail Project (archaeological monitoring of proposed bike-trail segments in Hemet and Menifee), for Dokken Engineering and County of Riverside, 2019
- Senior Project Director, Temescal Canyon Road Improvement Project (archaeological monitoring of culvert replacement on Temescal Canyon Road at Glen Ivy), Corona, California, for Dokken Engineering, July 2019
- Senior Project Director, Kramer Junction Realignment Project (archaeological monitoring for Highway 58 realignment), Kramer Junction, California, for California Department of Transportation (Caltrans), District 8, 2018–2019
- Senior Project Director, Temescal Canyon Road Widening Project (archaeological monitoring of sections of Temescal Canyon Road), Corona, California, for Dokken Engineering, 2018–2019
- Senior Project Director, U.S. 395 Widen Lanes, Add Shoulders and Rumble Strips Project (data recovery of CA-SBR-2257/H and subsequent monitoring of roadwork along U.S. 395), near Kramer Junction, California, for Caltrans District 8, 2018–2019
- Senior Project Director, China Lake 8 Site Testing and Evaluation (Section 110 testing of 8 sites), Naval Air Weapons Station China Lake, California, for NAVFAC, 2017–2018
- Senior Project Director, State Route 62 Restore Storm Eroded Embankments with RSP and Replace Culverts Project (survey for proposed culvert and embankment repairs), near Vidal Junction, California, for Caltrans District 8, 2017–2018

- Senior Project Director and Osteologist, Caltrans Highway 138 Realignment Project (archaeological monitoring of culturally sensitive areas along the footprint of the Highway 138 realignment and on-site osteologist for inadvertent human-remains discoveries), Crowder Canyon, Calfornia, for Caltrans, 2017–2018
- Senior Project Director, U.S. 95 Restore Storm Eroded Embankments with RSP and Replace Culverts Project (survey for proposed culvert and embankment repairs), near Blythe, California, for Caltrans District 8, 2017
- Project Director, Line 4000 Anomaly Digs Cultural Resources Survey (28-mile archaeological survey and site recording of the Southern California Gas Company Line 4000 natural-gas line), Lucerne Valley, California, for the Southern California Gas Company, 2015

Registration and Permits

- BLM California Cultural Resource Use Permit CA-16-12, issued January 12, 2016
- CHRIS Access Agreement No. 96
- Register of Professional Archaeologists (RPA No. 989159)

Selected Publications

- 2020 *Addendum to Archaeological Monitoring Report, State Route 138 Realignment Project, near Hesperia, San Bernardino County, California, 08-SBD-138 (P.M. 16.3-19.7), EA 08-1H410, formerly 0Q300, Project No. 08120000039-3* (with Scott H. Kremkau and Kenneth M. Becker). Statistical Research, Redlands, California.
- 2019 *FY 2017 Section 110 Archaeological Testing and NRHP Evaluation of Six Archaeological Sites (CA-SDI-13657, CA-SDI-15558, CA-SDI-15840, CA-SDI-20313, CA-SDI- 20802, and CA-SDI-21449), Marine Corps Base, Camp Pendleton, California* (with Joy L. Vyhmeister, Mark Q. Sutton, and Michael K. Lerch). Technical Report 19-17. Statistical Research, Redlands, California.
- 2018 *Archaeological Survey Report, SR 62 Restore Storm Eroded Embankments with RSP and Replace Culverts Project Near Vidal Junction, San Bernardino County, California*. Statistical Research, Redlands, California.
- 2018 *Extended Phase 1 Report for CA-RIV-506 (P-33-000506) and CA-RIV-508/H (P-33-000508) for the State Route 74 Ortega Highway Safety Project, near Lake Elsinore, Riverside County, California* (with Scott H. Kremkau). Statistical Research, Redlands, California.
- 2018 *Section 110 Testing and Evaluation of Eight Sites on the North Range, Naval Air Weapons Station China Lake, California* (with Mark Q. Sutton, Scott H. Kremkau, Stephanie A. E. Jolivette, and Kenneth M. Becker). Technical Report 18-07. Statistical Research, Redlands, California.
- 2017 *An Archaeological Survey of 9,300 Acres at Marine Corps Air Ground Combat Center, Twentynine Palms, California* (with Angela H. Keller). Technical Report 17-41. Draft. Statistical Research, Redlands, California.
- 2017 *Archaeological Survey Report, U.S. 95 Restore Storm Eroded Embankments with RSP and Replace Culverts Project Near Blythe, Riverside County, California*. Statistical Research, Redlands, California.
- 2017 *Pulte Group Section 24 Cremation Recovery, Rancho Mirage, Riverside County, California*. (with Scott H. Kremkau). Technical Report 17-70. Draft. Statistical Research, Redlands, California.
- 2016 *Class III Archaeological Survey of the Desert Quartzite Solar Project, Riverside County, California* (editor, with Michael K. Lerch). Technical Report 15-36. Statistical Research, Redlands, California.
- 2015 *Cultural Resources Survey for the Southern California Gas Company North-South Project, San Bernardino and Riverside Counties, California* (editor, with Kenneth M. Becker). Technical Report 15-59. Statistical Research, Redlands, California.

Native American Coordination

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NATIVE AMERICAN HERITAGE COMMISSION

November 4, 2020

Heather Thomson
Riverside County Planning Department

Via Email to: hthomson@rivco.org

Re: Native American Consultation, Pursuant to Senate Bill 18, Government Code §65352.3 and §65352.4, GPA200005 Project, Riverside County

Dear Ms. Thomson:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties.

Government Code §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

The law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

The NAHC also believes that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

    - A listing of any and all known cultural resources that have already been recorded or are adjacent to the APE, such as known archaeological sites;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code §6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we are able to assure that our consultation list remains current.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Riverside County
11/4/2020

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed GPA200005 Project, Riverside County.

Native American Heritage Commission
Tribal Consultation List
Riverside County
11/4/2020

Soboba Band of Luiseno Indians Scott Cozart, Chairperson P. O. Box 487 San Jacinto, CA, 92583 Phone: (951) 654 - 2765 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	Cahuilla Luiseno
Torres-Martinez Desert Cahuilla Indians Thomas Tortez, Chairperson P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 397 - 0300 Fax: (760) 397-8146 tmchair@torresmartinez.org	Cahuilla

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed GPA200005 Project, Riverside County.

STATISTICAL RESEARCH, Inc.

ARCHAEOLOGY • ANTHROPOLOGY • HISTORY • HISTORIC ARCHITECTURE • PALEONTOLOGY

CALIFORNIA
Redlands
21 W. Stuart Ave.
P.O. Box 390
Redlands, CA
92373-0123
(909) 335-1896
(909) 335-0808 (fax)

San Diego
121 Broadway
Suite 554
San Diego, CA
92101
(619) 299-9766
(619) 299-9774 (fax)

ARIZONA
Phoenix
P.O. Box 27748
Tempe, AZ
85285-7748
(480) 774-1920

Tucson
3170 E. Fort Lowell Rd.
Tucson, AZ
85716-1615
(520) 721-4309

NEW MEXICO
Albuquerque
117 Bryn Mawr Drive SE
Albuquerque, NM
87106
(505) 323-8300
(505) 331-2491 (cell)

WASHINGTON
Lacey
1110 Golf Club Rd. SE
Suite 102
Lacey, WA
98503
(360) 918-8621
(360) 915-6531 (fax)

www.sricrm.com

January 29, 2021

«Name»
«Title»
«Affiliation»
«Address_1»
«Address_2»

Subject: Coachella Valley Arena Extension Line Survey, near Thousand Palms, Riverside County, California

Dear «Name»,

A utility provider, Imperial Irrigation District (IID) proposes an extension of an existing electrical distribution line that currently ends approximately 1,600 feet north of Cook Street/Chase School Road in unincorporated Riverside County (Figure 1). The disturbance to extend this distribution line along an existing dirt road will be limited to drilling holes and installation of power poles in these aforementioned holes and will extend to Cook Street/Chase School Road. The project area is located near Thousand Palms in Riverside County, California on the Myoma U.S. Geological Survey 7.5-minute topographic maps (Figure 2). This line extension is proposed to support development in the approved NorthStar Specific Plan Area. Existing development in the NorthStar Specific Plan Area consists of the Classic Club Golf Course and Club House.

As part of this project, Statistical Research, Inc. (SRI) has been contracted by Meridian Consultants to provide cultural resources study support. The purpose of our study is to prepare the relevant cultural resource documents necessary to assist in processing an amendment to the NorthStar Specific Plan.

The development is considered a "project" subject to the California Environmental Quality Act (CEQA) (California *Public Resources Code* [PRC], Sections 21000–21177, as amended), which mandates that the lead agency consider the effects of the project on historical and archaeological resources. The County of Riverside (County) will be the CEQA lead agency. Our scope of work includes both Native American coordination to identify and assess the potential effect of the proposed project on Native American sacred sites or other traditional cultural properties and a cultural resources pedestrian survey of the entire 1,600 foot long project area.

As part of their SB 18 consultation, the County has contacted the California Native American Heritage Commission (NAHC) and requested a sacred lands file search be conducted to identify any known cultural resources within the project area. Although the results of the NAHC sacred lands file search were negative, the NAHC acknowledged this does not preclude the existence of such resources and identified you and other individuals as potentially having knowledge beyond theirs of Native American resources that may be present at this location. This list was provided to SRI by the County.

In order to help us complete our study, we respectfully request your assistance in identifying Native American resources within the project area. If you know of any that could be affected by the project, please contact me so that these resources can be considered during the planning process. Lastly, please note that this request is being made as part of the information gathering process of our cultural resources study and does not constitute government-to-government consultation.

Thank you very much for your assistance. I look forward to hearing from you at your earliest convenience. If you would like further information, please call me at (909) 335-1896 or contact me by E-mail at pstanton@sricrm.com.

Sincerely,

Patrick Stanton, M.A., RPA
Assistant Director – Redlands Office
Principal Investigator
Statistical Research, Inc.

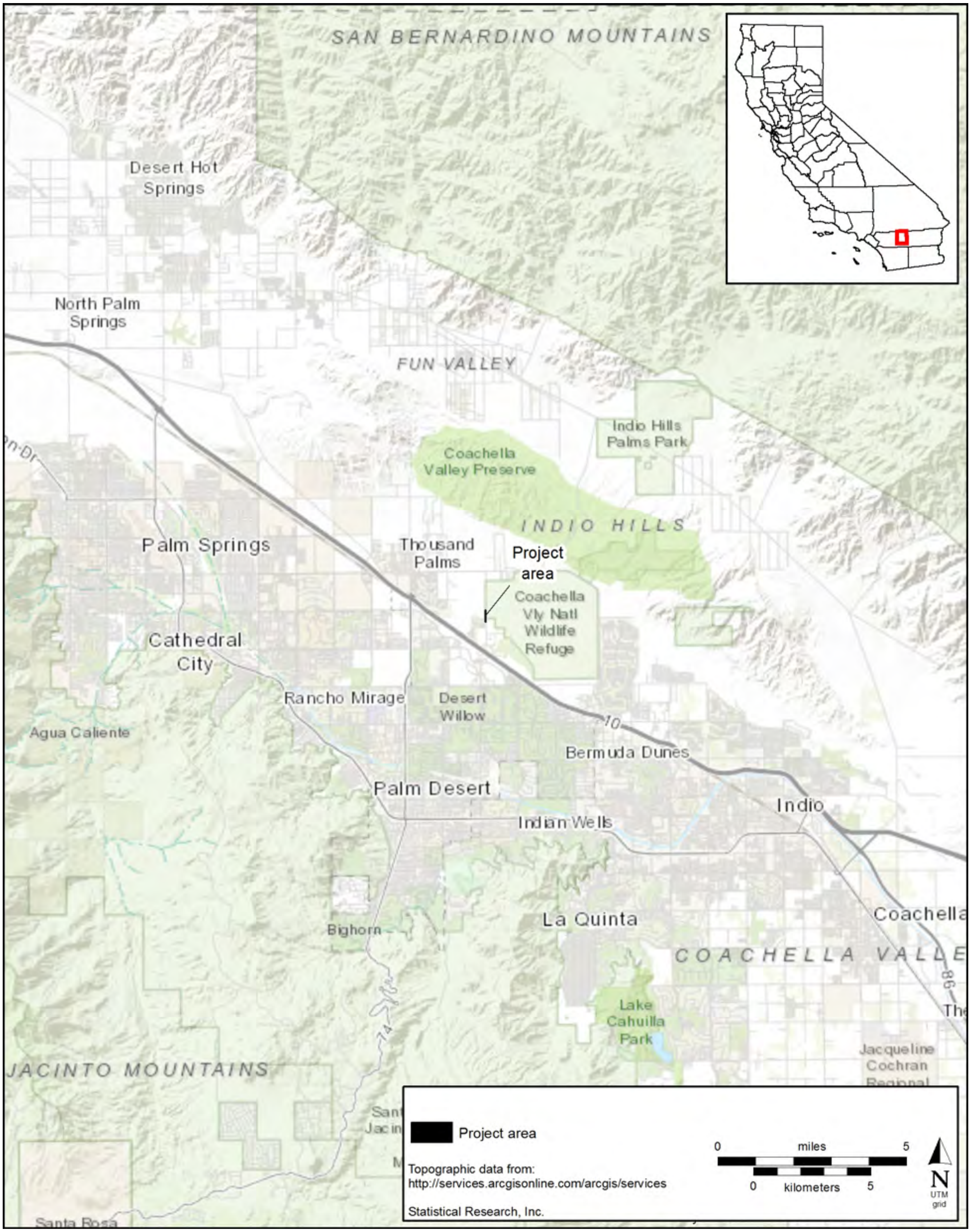

Figure 1. Project Vicinity Map

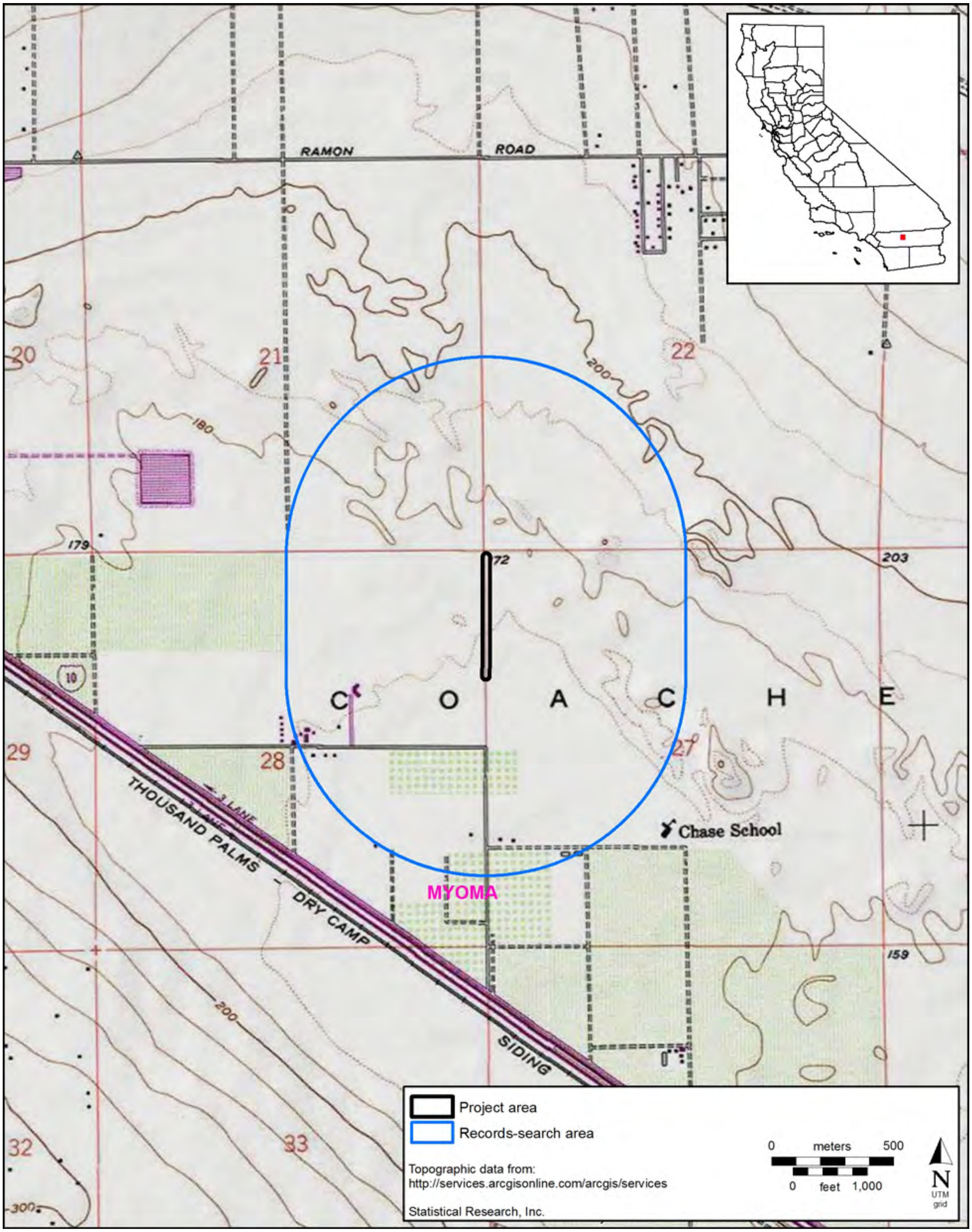

Figure 2. Project Location Map

Native American Correspondence Log

Name	Title	Affiliation	Address	Date Letter Sent	Date Letter Arrived	Date of Follow-Up Email	Response
Jeff Grubbe	Chairperson	Agua Caliente Band of Cahuilla Indians (ACBCI)	5401 Dinah Shore Drive Palm Springs, CA 92264	1-Feb	5-Feb		No response.
Patricia Garcia-Plotkin	Director	ACBCI	5401 Dinah Shore Drive Palm Springs, CA 92264	1-Feb	5-Feb	10-Feb	Letter response on Feb 11, 2021. ACBCI requests (1) a copy of the records-search results, along with associated survey reports and site records; (2) copies of any reports and site records generated in connection with this project; (3) the presence of an ACBCI monitor during ground disturbance; and (4) an informational meeting with the developer, the lead agency, and an archaeologist. ACBCI will coordinate with SRI first.
Amanda Vance	Chairperson	Augustine Band of Cahuilla Indians	P.O. Box 846 Coachella, CA 92236	1-Feb	5-Feb	10-Feb	No response.
Doug Welmas	Chairperson	Cabazon Band of Mission Indians	84-245 Indio Springs Parkway Indio, CA 92203	1-Feb	5-Feb	10-Feb	Email response on February 11, 2021, by Michael Mirelez (Director of Cultural Affairs), indicating that the Tribe has no specific archival information on the site to indicate sacred/religious or other Native American cultural importance.
Daniel Salgado	Chairperson	Cahuilla Band of Indians	52701 U.S. Highway 371 Anza, CA 92539	1-Feb	8-Feb	10-Feb	No response.
Shane Chapparosa	Chairperson	Los Coyotes Band of Cahuilla and Cupeño Indians	P.O. Box 189 Warner Springs, CA 92086-0189	1-Feb	6-Feb		No response.
Robert Martin	Chairperson	Morongo Band of Mission Indians	12700 Pumarra Road Banning, CA 92220	1-Feb	5-Feb	10-Feb	No response.
Jill McCormick	Historic Preservation Officer	Quechan Tribe of the Fort Yuma Reservation	P.O. Box 1899 Yuma, AZ 85366	1-Feb	5-Feb		Email response on February 8, 2021, indicating that the Quechan Tribe of the Fort Yuma Reservation will defer to local Tribes.
Joseph Hamilton	Chairperson	Ramona Band of Cahuilla	P.O. Box 391670 Anza, CA 92539	1-Feb	8-Feb	10-Feb	No response.

Name	Title	Affiliation	Address	Date Letter Sent	Date Letter Arrived	Date of Follow-Up Email	Response
Lovina Redner	Tribal Chair	Santa Rosa Band of Cahuilla Indians	P.O. Box 391820 Anza, CA 92539	1-Feb	-	9-Feb	No response; letter not picked up by recipient.
Scott Cozart	Chairperson	Soboba Band of Luiseño Indians	P.O. Box 487 San Jacinto, CA 92583	1-Feb	8-Feb	10-Feb	No response.
Thomas Tortez	Chairperson	Torres-Martinez Desert Cahuilla Indians	P.O. Box 1160 Thermal, CA 92274	1-Feb	4-Feb	10-Feb	Email bounced back.

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-006-2021-005

February 11, 2021

[VIA EMAIL TO:pstanton@sricrm.com]
Statistical Research, Inc.
Mr. Patrick Stanton
21 W. Stuart Avenue
Redlands, California 92374

Re: Palm Desert Arena & Coachella Valley Arena Distribution Line Extension Survey Notification

Dear Mr. Patrick Stanton,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Palm Desert Arena project. We have reviewed the documents and have the following comments:

*A copy of the records search with associated survey reports and site records from the information center.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*The presence of an approved Agua Caliente Native American Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer and the Agua Caliente Tribal Historic Preservation Office.

*An informational meeting with the developer, lead agency, and archaeologist regarding cultural compliance procedures for this project.

* Hannah Feeney will be contacting you to coordinate a meeting with SRI first and then we can have a meeting with the lead agency and developer.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6907. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Patricia Garcia-Plotkin

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

03-006-2021-005

Pattie Garcia-Plotkin
Director
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

From:	Mirelez, Michael
To:	Patrick Stanton
Subject:	Re: Coachella Valley Arena Distribution Line Extension Survey Notification
Date:	Thursday, February 11, 2021 10:56:30 AM
Attachments:	image001.png

February 11, 2021

To: Patrick Stanton, M.A., RPA
Principal Investigator
Assistant Office Director, Redlands Office
Statistical Research, Inc.
21 W. Stuart Ave.
Redlands, CA. 92374
office 909-335-1896
fax 909-335-0808

Re: Coachella Valley Arena Distribution Line Extension Survey Notification

Dear Mr. Stanton

Thank you for contacting the Cabazon Band of Mission Indians concerning cultural resource information relative to the above referenced project.

The project is located outside of the Tribe's current reservation boundaries but within the geographic area with which the tribe is traditionally and culturally affiliated. The Tribe has no specific archival information on the site indicating that it may be a sacred/religious site or other site of Native American traditional cultural value.

We look forward to continued collaboration in the preservation of cultural resources or areas of traditional cultural importance.

Best regards,
Michael Mirelez
Director of Cultural Affairs
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio Ca. 92203-3499
Office: 760.238.5770
Cell:760.984.9374
[signature_363928312]

Soil Pedon Description for the Project Area (Township 4 South, Range 6 East, Sections 27 and 28)

(Data from the Natural Resources Conservation Service Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, and database of official soil-series descriptions, https://soilseries.sc.egov.usda.gov/osdname.aspx, accessed February 17, 2021.)

Myoma Series

LOCATION: Myoma, California
Established Series
Rev. LAB/AAK/GMK
05/97

Typically, Myoma soils are light olive gray, moderately alkaline fine and very fine sands to a depth of about 31 inches. Below 31 inches, they are strongly alkaline very fine sands.

TAXONOMIC CLASS: mixed, hyperthermic Typic Torripsamments

TYPICAL PEDON: Myoma fine sand—uncultivated (colors are for dry soil unless otherwise noted)

C1: 0–18 inches; light olive gray (5Y 6/2) fine sand, olive gray (5Y 5/2) moist; single grain; loose dry and moist; common very fine and few fine roots; some conch shells; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary (9–20 inches thick)

C2: 18–24 inches; light olive gray (5Y 6/2) very fine sand, olive gray (5Y 5/2) moist; single grain, loose; few common very fine roots; highly micaceous; cross bedding; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary (3–10 inches thick)

C3: 24–31 inches; light olive gray (5Y 6/2) fine sand, olive gray (5Y 5/2) moist; single grain; loose; few very fine and fine roots; few conch and clam shells; moderately alkaline (pH 8.4); clear wavy boundary (6–14 inches thick)

C4: 31–60 inches; light olive gray (5Y 6/2) very fine sand, olive gray (5Y 4/2) moist; single grain; loose; few very fine roots; few conch and clam shell; strongly effervescent; strongly alkaline (pH 8.6)

TYPE LOCATION: Riverside County, California; 3 miles south of Indio; 440 feet east and 100 feet south of the N¼ of Section 11 of Township 6 South, Range 7 East, on the San Bernardino Base and Meridian

RANGE IN CHARACTERISTICS: The texture of the C1 horizon is very fine sand to sand. Hue is 2.5Y and yellower, and value is 5–7 dry and 3–6 moist, with chroma of 1–3 moist and dry. The control section has less than 15 percent coarse fragments and less than 15 percent of coarse and very coarse sand. The profile throughout is moderately to strongly alkaline with slight to violent effervescence.

COMPETING SERIES: These are the Carrizo, Carsitas, Coachella, Delhi, and Rositas Series. Carrizo soils have more than 35 percent coarse fragments. Carsitas soils have 15–35 percent coarse fragments. Coachella soils have an irregular decrease in organic matter in the control section. Delhi soils have a thermic temperature regime. Rositas soils have hue of 10YR or redder throughout.

GEOGRAPHIC SETTING: Myoma soils are nearly level to rolling, have hummocky microrelief where unprotected, and are at elevations of 200 feet below sea level to 1,800 feet above sea level. The soil formed in sand blown from recent alluvium. The climate is arid with an annual precipitation of 2–4 inches that occurs as gentle winter rain or erratic, high-intensity summer storms. The average January temperature is about 53°F, the average July temperature is 92°F, and the average annual temperature is about 72°F–75°F. The frost-free season (32°F+) is about 290 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the competing Carsitas and Coachella series and the Gilman, Niland, and Salton soils. Gilman soils have a coarse-loamy control section. Niland soils have contrasting textures in the control section, sandy over clayey. Salton soils have a fine-silty control section.

DRAINAGE AND PERMEABILITY: Somewhat excessively drained; very slow runoff; rapid permeability.

USE AND VEGETATION: Myoma soils are used principally for growing citrus fruits, grapes, alfalfa, dates and truck crops under irrigation. Native vegetation is ephemeral grasses and forbs, and a sparse cover of creosotebush, bush sunflower and mesquite.

DISTRIBUTION AND EXTENT: Southern California. Myoma soils are extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Riverside County (Coachella Valley Area), California, 1974.
OSED scanned by SSQA. Last revised by state on 5/74.

National Cooperative Soil Survey
U.S.A.

MaB—Myoma fine sand, 0–5 percent slopes

Map Unit Setting

- Elevation: –200–1,800 feet
- Mean annual precipitation: 2–4 inches
- Mean annual air temperature: 72°F–75°F
- Frost-free period: 270–320 days

Map Unit Composition

- Myoma and similar soils: 85 percent
- Minor components: 15 percent

Description of Myoma

Setting

- Landform: alluvial fans
- Landform position (two-dimensional): toe slope
- Landform position (three-dimensional): tread

- Down-slope shape: linear
- Across-slope shape: linear
- Parent material: wind-blown sandy alluvium

Properties and qualities

- Slope: 0–5 percent
- Depth to restrictive feature: more than 80 inches
- Drainage class: somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): high to very high (5.95–19.98 inches/hour)
- Depth to water table: more than 80 inches
- Frequency of flooding: none
- Frequency of ponding: none
- Calcium carbonate, maximum content: 5 percent
- Maximum salinity: nonsaline (0.0–2.0 mmhos/cm)
- Available water capacity: low (about 4.8 inches)

Interpretive groups

- Farmland classification: prime farmland if irrigated
- Land capability classification (irrigated): 3e
- Land capability (nonirrigated): 7e
- Hydrologic soil group: A

Typical profile

- 0–18 inches: fine sand
- 18–60 inches: sand

Minor Components

Coachella

- Percent of map unit: 4 percent

Carsitas

- Percent of map unit: 4 percent

Unnamed, noncalcareous soils

- Percent of map unit: 4 percent

Riverwash

- Percent of map unit: 3 percent
- Landform: channels

MaD—Myoma fine sand, 5–15 percent slopes

Map Unit Setting

- Elevation: –200–1,800 feet
- Mean annual precipitation: 2–4 inches
- Mean annual air temperature: 72°F–75°F
- Frost-free period: 270–320 days

Map Unit Composition

- Myoma and similar soils: 85 percent
- Minor components: 15 percent

Description of Myoma

Setting

- Landform: alluvial fans
- Landform position (two-dimensional): foot slope
- Landform position (three-dimensional): tread
- Down-slope shape: linear
- Across-slope shape: linear
- Parent material: wind-blown sandy alluvium

Properties and qualities

- Slope: 5–15 percent
- Depth to restrictive feature: more than 80 inches
- Drainage class: somewhat excessively drained
- Capacity of the most-limiting layer to transmit water (Ksat): high to very high (5.95–19.98 inches/hour)
- Depth to water table: more than 80 inches
- Frequency of flooding: none
- Frequency of ponding: none
- Maximum salinity: nonsaline (0.0–2.0 mmhos/cm)
- Available water capacity: low (about 4.8 inches)

Interpretive groups

- Farmland classification: prime farmland if irrigated
- Land capability classification (irrigated): 3e
- Land capability (nonirrigated): 7e
- Hydrologic soil group: A

Typical profile

- 0–18 inches: Fine sand
- 18–60 inches: Sand

Minor Components

Coachella

- Percent of map unit: 5 percent

Unnamed, calcareous soils

- Percent of map unit: 5 percent

Riverwash

- Percent of map unit: 3 percent
- Landform: channels

Carsitas

- Percent of map unit: 2 percent

APPENDIX K

Will Serve Letters

K1

Will Serve Letter Request for Palm Springs Arena APNs 695-100-010 and 695-100-015, prepared by Imperial Irrigation District and dated February 26, 2021

February 26, 2021

Leanna Thrane
NV5
26835 Jefferson Avenue, Suite A
Murrieta, CA 92562

Subject: Will Serve Letter Request for Palm Springs Arena APNs 695-100-010 and 695-100-015

Dear Ms. Thrane:

The purpose of this letter is to provide a response to your correspondence received on December 21, 2020, and January 12, 2021 regarding a Will Serve letter for the Hockey Arena development located along Varner Road east of Cook Street, in the unincorporated area of Thousand Palms.

The Imperial Irrigation District (IID) is willing to extend its electrical facilities to those developments that have obtained the approval of the City or County Planning Commission or such other governmental authority having jurisdiction over said developments. For the purpose of this Will Serve letter, the project is as described on Attachment A.

Based on the preliminary loading and construction phasing information provided to the IID, and as a result of the completion of the loading and feasibility study to serve the area of Varner Road east of Cook Street, IID has concluded that it can extend electrical facilities to serve the project under the conditions as set forth herein. A detailed and final study will be developed once a Customer Service Proposal (CSP) and loading information is received. This information will allow IID to perform an accurate assessment of any potential impacts and mitigations. Please be advised that the conditions of service may change as a result of the additional studies.
Based on the preliminary, high level analysis conducted, IID offers the following plan of service:

I. **Interim Plan of Service for Hockey Arena 3.7 MVA requested:**

1. IID can accommodate the power request for the project from existing facilities served by Edom Substation by extending an overhead distribution circuit backbone underbuilt extension (V111 circuit) along Ramon Road

from Monterey Avenue to Chase School Road, and along Chase School Road from Ramon Road to Varner Road and to the project. This backbone extension will also include the connection to existing facilities on Varner Road/Cook Street and to Avenue 38 as well. The District's ability to provide service from existing infrastructure is based on current available capacity and is contingent upon this development's construction progress in the area of Varner Road East of Cook Street. The project must progress toward completion or IID is unable to hold system capacity to the detriment of other customers. Additional requirements are such items as environmental compliance documentation and all rights-of way and easements for the distribution line backbone extensions or reconfigurations needed, all of which are at the expense of the developer.

2. Developer shall bear all costs associated with the construction of any additional distribution overhead and/or underground backbones, line extensions, upgrades or reconfigurations needed to extend electrical service to the proposed development.

3. Underground infrastructure that includes trenching, conduits, pull boxes, switch boxes and pads should be installed following IID approved plans and within the public utility easement (PUE) or a dedicated easement, if applicable. Physical field installation of underground infrastructures should be verified and approved by an IID inspector prior to cable installation as per IID Developer's Guide.

4. Line extensions to serve the development will be made in accordance with IID Regulation No. 15, Regulation No. 2 and Regulation No.13. The final cost will be determined once the developer/builder submits a Customer Service Proposal application and final design is completed.

5. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). The IID Real Estate Section should be contacted at (760)339-9239 for additional information regarding encroachment permits or agreements.

6. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until the environmental documentation is amended and environmental impacts

are fully mitigated. Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.

7. Please be advised that, as a response to the developer's request and expedited construction schedule, IID agreed to provide temporary service at this time from existing facilities. It should be noted this is a temporary plan of service. A permanent service will be provided from new facilities that are required to serve the remainder of the Classic Club development, all which are the developer's cost responsibility. A comprehensive study for the more robust plan for the Classic Club development's permanent service will be required, IID is currently awaiting loading information from the developer.

8. Finally, due to the nature of loading requested IID strongly encourages installation of a redundant service. It is IID's understanding that the developer has declined to proceed with a request for a redundant service. IID advises that the developer should install a backup source, to serve at a minimum the critical infrastructure required to maintain the ice loading.

Please take note that, due to unforeseen development, other projects could impact existing resources, which may affect IID's ability to serve this load, if the project does not move forward to completion in a timely manner.

Based upon the above, by a date no later than February 23, 2022, you must provide the following documentation to IID: 1) Evidence of issuance of all local authorizations required to initiate construction, 2) Application for the installation of underground infrastructure system and payment of accompanying fees and 3) Application for service and payment of accompanying fees. Absent receipt of such evidence and documentation by the referenced date, a new study will be required including a revised Plan of Service.

If you have any questions, please contact Jose Gerardo at (760)398-5823. We look forward to working closely with you to facilitate the success of your project.

Sincerely,

Barraza,
Guillermo

Digitally signed by Barraza, Guillermo
DN: dc=com, dc=IID, ou=Enterprise, ou=Energy, ou=Energy Planning and Engineering, ou=Energy Distribution Planning Engineering and Customer Operations, ou=Energy Distribution Planning and Engineering, cn=Barraza, Guillermo, email=GBarraza@IID.com
Date: 2021.03.01 13:50:07 -08'00'

Guillermo Barraza
Superintendent, Distribution System Planning and Engineering

cc: Constance Bergmark, Manager, Planning and Engineering
Enrique De Leon, Assistant Manager, Energy Department
Jose Gerardo, Supervisor, Distribution
Donald Vargas, Compliance Administrator

ATTACHMENT A

December 18, 2020

Jose Luis Gerardo/Travis Maston
Imperial Irrigation District
81-600 Avenue 58
La Quinta, CA 92253
JLGerardo@IID.com/tnmaston@IID.com

Dear Mr. Gerardo/Mr. Maston,

As you are aware, SoCal Arena Company, LLC is planning to develop a 226,500 SF event and training ice arena "Palm Springs Arena" located on Varner Road east of Cook Street in the unincorporated area of Thousand Palms, California (APNs 695-100-010 and 695-100-015). The arena is expected to be ready for service in January 14, 2022.

Attached please find the arena Site Plan and a Google Map image that will aid you in defining the project area. Also included for your use, are the load calculations provided by the electrical engineer. At this time, we request that IID provide a Will Serve Letter for the arena site. If you are unable to provide this information yourself, please forward this request to the correct party.

The legal name and address for the land owner/developer for invoices is:

SoCal Arena Company, LLC
Attn: Steve Collins
1100 Glendon Ave., Suite 2100
Los Angeles, CA 90024

Please address all invoices to **SoCal Arena Company, LLC** C/O NV5 (address below):

NV5
26835 Jefferson Avenue, Suite A
Murrieta, CA 92562
Attn: Leanna Thrane
Leanna.Thrane@nv5.com

Thank you for your assistance. If you have any questions, please feel free to contact me at 951.538.7233.

Best regards,

Leanna Thrane

Leanna Thrane
Project Manager

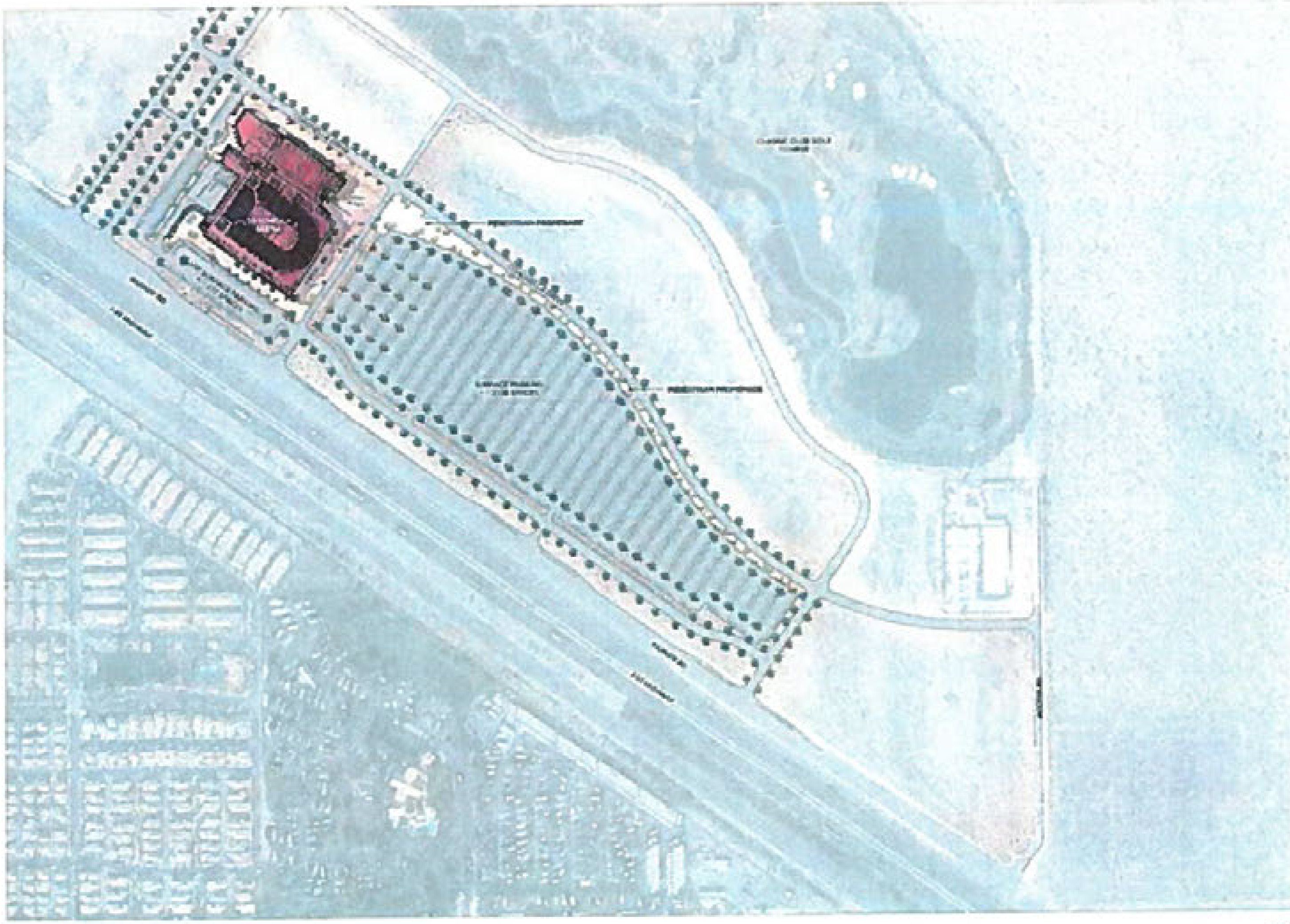

FIGURE 3 | PARCEL 8 - RIVERSIDE COUNTY ARENA SITE PLAN

Google Maps Varner Rd & Cook St

Imagery ©2020 Maxar Technologies, USDA Farm Service Agency, Map data ©2020 1000 ft

me | engineers

ME Engineers, Inc.
14143 Denver West Pkwy, Suite 300
Golden CO 80401
Office 303 421 6655
me-engineers.com

December 02, 2020

Mr. Shawn Ropp
CAA Icon
5075 S. Syracuse St. Suite 700
Denver CO 80327

RE: Riverside County Arena
Preliminary Electrical Loads

Preliminary loads have been calculated new arena which are listed below along with a comparison to other arenas with diversities included and how these loads are distributed among the (3) services for the new Riverside County arena project:

1. Total Arena Loads

a.	Lighting (Interior/Exterior)	= 290 kVA
b.	Sports Lighting	= 80 kVA
c.	Power (Outlets, TV's, Misc. Equipment)	= 1,240 kVA
d.	Food Service Areas	= 740 kVA
e.	Ice Plant	= 715 kVA
f.	Mechanical Equipment	= 3,555 kVA
g.	Fire Pump (50HP)	= 54 kVA
h.	Elevators	= 180 kVA
i.	Scoreboards/Ribbon boards	= 230 kVA
j.	Show Power	= 875 kVA
k.	Broadcast Trucks	= 450 kVA
	Total Connected Load	= 8,409 kVA
	Peak Load with 40%-45% Diversity*	= 3,364 kVA to 3,784 kVA

2. Other Arenas

		Connected	Actual Peak	Diversity
a.	Pepsi Center Arena (2000 tons)	9,562 kVA	4,282 kVA	45%
b.	Nationwide Arena (1950 tons)	15,874 kVA	7,325 kVA	46%
c.	PPG Paints Arena (2600 tons)	16,755 kVA	6,655 kVA	40%
d.	Denny Sanford Premier (1600 tons)	9,352 kVA	2,235 kVA	24%

*Based on historical energy demands for professional arenas, we typically use a diversity of 40%-45% of our connected load to determine our estimated peak demand.

3. (3) Arena Services
   a. MSS1 (1st Service – NW Corner of Building)
      i. Lighting (Interior/Exterior) = 95 kVA

ii.	Power (Outlets, TV's, Misc. Equipment)	= 630 kVA
iii.	Food Service Areas	= 225 kVA
iv.	Ice Plant	= 715 kVA
v.	Mechanical Equipment	= 1,100 kVA
vi.	Fire Pump (50HP)	= 54 kVA
vii.	Elevators	= 65 kVA
viii.	Scoreboards/Ribbon boards	= 30 kVA
ix.	Show Power	= 150 kVA

Total Connected Load	= 3,064 kVA
Peak Load with 40%-45% Diversity*	= 1,226 kVA to 1,379 kVA

b. MSS2 (2nd Service – NW Corner of Building)

i.	Lighting (Interior/Exterior)	= 105 kVA
ii.	Sports Lighting	= 40 kVA
iii.	Power (Outlets, TV's, Misc. Equipment)	= 295 kVA
iv.	Food Service Areas	= 185 kVA
v.	Mechanical Equipment	= 1,935 kVA
vi.	Elevators	= 115 kVA
vii.	Show Power	= 325 kVA

Total Connected Load	= 3,000 kVA
Peak Load with 40%-45% Diversity*	= 1,200 kVA to 1,350 kVA

c. MSS3 (3rd Service – SW Corner of Building)

i.	Lighting (Interior/Exterior)	= 90 kVA
ii.	Sports Lighting	= 40 kVA
iii.	Power (Outlets, TV's, Misc. Equipment)	= 315 kVA
iv.	Food Service Areas	= 330 kVA
v.	Mechanical Equipment	= 520 kVA
vi.	Scoreboards/Ribbon boards	= 200 kVA
vii.	Show Power	= 400 kVA
viii.	Broadcast Trucks	= 450 kVA

Total Connected Load	= 2,345 kVA
Peak Load with 40%-45% Diversity*	= 938 kVA to 1,055 kVA

The loads listed above are preliminary estimates based on past arena projects and the current plans. We hope this information is helpful, and if you have any questions please feel free to call.

Sincerely,

M-E ENGINEERS, INC.
Kansas City Office

Mark Lievens, P.E.
Associate

Cc: Shawn Ropp – CAA Icon
Melissa Wallace – CAA Icon
Art Salgado – CAA Icon
Leanna Thrane – NV5
George Reiher – ME Engineers
Jackie Lybarger – ME Engineers
Jeff Ewens – ME Engineers
Robert Norvell - Populous
Bridget Gramlich – Populous

The H.N.
and
Frances C.
BERGER
FOUNDATION

January 11, 2021

VIA E-MAIL ONLY
Travis Maston
IMPERIAL IRRIGATION DISTRICT
333 e. Barioni Blvd.
Imperial, CA 92251

Re: Hockey Arena Project

Dear Mr. Maston:

As you know, there are plans undergoing review by the County of Riverside, IID, and other pertinent agencies for planning and construction of a 10,000 seat hockey arena on land owned by The H.N. and Frances C. Berger Foundation (the "Berger Foundation") at The Classic Club/NorthStar Ranch. Per your request, please let this letter serve to identify the relationships between various parties regarding this project.

The Berger Foundation will be the lessor of land to an affiliate of the Oak View Group ("OVG") whose principals are Tim Leiweke and Irving Azoff. OVG has formed an entity called SoCal Arena Company, LLC which will be the ground lessee and owner and operator of the arena. Therefore, these are the parties involved in the following capacities:

Land owner/ground lessor	Berger Foundation
Arena owner/operator	SoCal Arena Company, LLC
Owner's (OVG's) Representative	CAA Icon
General Contractor	Hunt Construction Group.

Hopefully this clarifies the parties involved, However, if you have further questions, please feel free to contact me.

Very truly yours,

Michael B. Rover
Vice President/General Counsel

MBR/

P.O. Box 13390
Palm Desert CA
92255-3390
TEL (760) 341-5293
FAX (760) 341-3518

K2

Northstar Specific Plan 343 Amendment Project, prepared by CVWD and dated February 19, 2021.

GENERAL MANAGER
Jim Barrett

CLERK OF THE BOARD
Sylvia Bermudez

ASSISTANT GENERAL MANAGER
Robert Cheng

ASSISTANT GENERAL MANAGER
Dan Charlton

February 19, 2021

Russell Brady
Planning Department
Riverside County
4080 Lemon Street 12th Floor
Riverside, CA 92501

Dear Mr. Brady:

Subject: Northstar Specific Plan 343 Amendment Project

This letter is in response to your letter dated February 4, 2021 regarding the Northstar Project (Project). The Riverside County (County) Transportation and Land Management Agency (TLMA) is updating the information and analysis in EIR No. 470 (approved in 2006) to address the proposed Specific Plan Amendment (SPA) for the Project.

Your letter requests that the Coachella Valley Water District (CVWD) provide an opinion on if the SPA triggers substantial changes to the original proposed drainage conditions.

The original Planning Area was designated as Industrial Park in the 2006 approval. The proposed change to the Planning Area modifies the designation from Industrial Park to Arena & Event Center. Although the Project drainage report indicates that this change will increase the proposed flood discharge from the site by 1-acre foot, the general Project area drainage patterns have not changed from the 2006 approval.

As such (while the Project will still require review and approval of mitigation measures for the proposed project in general, and for the increased flow due to the proposed Planning Area change), CVWD sees no substantial change in regional flow patterns relative to the 2006 approved Specific Plan that would require major revisions to EIR No. 470.

If you have any questions please call Scott Strosnider, Associate Engineer, extension 2737.

Sincerely,

David S. Wilson, P.E., CCM
Engineering Manager

SS:sl\Eng\SW\2021\Feb\Rivco Comment Response-Northstar :